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ABSTRACT

In an effort to determine whether instruction in the tagmemic discovery procedure significantly improves the student's ability to inquire into ill-defined problems and to communicate the results clearly and persuasively, an experimental course based on the first half of Richard Young, Alton Becker, and Kenneth Pike's "Rhetoric: Discovery and Change" was taught to twelve University of Michigan seniors, and nine tests were conducted to assess changes in the students' rhetorical skills. Results provided support for the proposition that strong personal involvement in an intellectual activity and substantial knowledge of the subject tend to improve the quality of what is written. Students improved in their ability to analyze problematic situations and to state problems. The results of their explorations or problematic data were more complex and varied; they became more sophisticated in testing hypotheses for adequacy; and they wrote essays that were more understandable and persuasive at the end of the course. (Author/HOD)

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*The Tagmemic Discovery Procedure
An Evaluation of Its Uses
in the Teaching of Rhetoric*

Grant Period: May 1, 1971, to August 31, 1972

RICHARD E. YOUNG
FRANK M. KOEN

July 1973

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Abstract

This study is an effort to determine whether instruction in the tagmemic discovery procedure, one component of tagmemic rhetoric, significantly improves the student's ability to inquire into ill-defined problems and to communicate the results clearly and persuasively. An experimental course based on the first half of Richard Young, Alton Becker and Kenneth Pike's *Rhetoric: Discovery and Change* was taught to twelve University of Michigan seniors, and nine tests were conducted to assess changes in the students' rhetorical skills. Changes in the stylistic and grammatical qualities of the essays and student reactions to the course were also investigated.

The results provide clear support for the proposition that strong personal involvement in an intellectual activity and substantial knowledge of the subject tend to improve the quality of what is written. Even though no formal instruction was provided in conventional rhetorical skills (e.g., usage, sentence and paragraph development, logic, methods of persuasion, and arrangement), English teachers regularly rated final essays more acceptable than initial ones. Students also improved in their ability to analyze problematic situations and state problems. Furthermore, the results of their explorations of problematic data were more complex and varied; they became more sophisticated in testing hypotheses for adequacy; and they wrote essays that were more understandable and persuasive at the end of the course.

The experiment did not establish, however, that the improved ability to explore problematic data was directly related to the nine-cell search procedure. Further study is required before conclusions can be drawn. In addition, the tests did not indicate that the theory as presently formulated and the course as taught increased the students' sensitivity to problematic situations; specific instruction directed toward this end is apparently needed. Although students wrote more clearly and persuasively at the end of the semester, they continued to make about the same number and kinds of stylistic and grammatical errors; formal instruction is probably necessary to bring about substantial improvements in the student's ability to produce

stylistically and grammatically adequate sentences.

Modifications in the rhetorical theory, teaching materials and testing procedures which are recommended in the study are currently being carried out.

Chapter One

The Problem

In 1937, the Committee on Undergraduate Training of the Curriculum Commission of the NCTE argued that the main reason for the failure of freshman English is that it attempts the impossible. It "tries to teach the student to write in an intellectual vacuum, that is, to write without a subject. In terms of conventional pedagogy, his practice in writing is not motivated; it is directed toward no definite and specific ends; it is divorced from all of his 'life activities'" (Campbell, 1934, p. 35). Judging from more recent studies, such as Albert Kitzhaber's *Themes, Theories and Therapy* (1963) and Herbert Muller's *Uses of English* (1967), the practice has not changed significantly during the last generation. Nor is it restricted to the freshman course; it typifies much of our writing instruction from primary school through college, although, as is clear from Muller's account of the Dartmouth Conference and the reports from the National Developmental Project on Rhetoric (Bitzer and Black, 1971), there are promising signs of change.

The peculiar lack of growth in the discipline and the basic similarities among conventional approaches, despite their surface differences, doubtless have several causes. But a fundamental cause is surely a conception of rhetoric which has dominated

writing programs for well over a century. During this time, the scope of rhetoric has been sharply reduced. Most notably, "invention"--the art of systematic inquiry into the subject, one of the Five Arts of classical rhetoric--has virtually disappeared as a discipline. Those in charge of teaching writing have been, with a few exceptions, preoccupied with correct usage, structure, and style; or to put it another way, they have focused their attention primarily on the editing of discourse for such features as grammaticality, prestige usage, clarity, precision, and organization. The result has been--to borrow I. A. Richards' description--a "waste" from which both student and teacher seek to escape (1936, p. 3). Professor Muller maintains that "teachers fail because they appear to emphasize 'writing' instead of writing-about-something-for-someone" (1967, p. 101).

Efforts to make composition "relevant" by means of assignments which encourage self-expression or which require analysis of great literature (or great ideas, or contemporary issues) have done little to remedy the problem, partly because of a lack of intellectual discipline required in the writing and classroom discussions, partly because problems of language tend to be divorced from problems of truth and inquiry. Summing up one powerful source of discontent among many teachers of rhetoric, Professor Muller deplores "the prevailing tendency to minimize the need of systematic knowledge, the value of techniques of analysis, the pleasures and excitements of 'cognition', or in

general the importance of *thinking*" (1967, p. 106).

We are arguing that a fundamental problem has persisted for decades in rhetorical instruction. Students are expected to learn, and they need to learn, to use language to explore their own experiences in search of ordering generalizations, to do so rigorously and responsibly, and to communicate their beliefs clearly and persuasively to others. Yet they are seldom given formal instruction in the arts of inquiry, argument, and persuasion. Conventional instruction is heavily biased toward the properties of good prose--a worthy goal but inadequate in itself, and perhaps unattainable when isolated from intellectual and social concerns.

A second problem, a more general one since it is not confined to a single discipline, is evident in several studies which show that the "abilities needed in typical academic activities are relatively independent from the abilities needed in creative activities" (Parnes, 1966, p. 3). Educators and students alike are well aware that, in Harold Rugg's words, "we have had millions of hours devoted to training in solving problems by reason, but almost none devoted to the cultivation of the imagination" (1963, p. 310). In short, we have tended to equate education with the mastery of rule-governed processes and the passive acquisition of information. To the extent that we have done so, we have subverted one of the goals of education. For as Jerome Bruner argues,

Education seeks to develop the power and sensibility of mind. On the one hand, the educational process transmits to the individual some part of the accumulation of knowledge, style, and values that constitutes the culture of a people. In doing so, it shapes the impulses, the consciousness, and the way of life of the individual. But education must also seek to develop the processes of intelligence so that the individual is capable of going beyond the cultural ways of his social world, able to innovate in however modest a way so that he can create an interior culture of his own. For whatever the art, the science, the literature, the history, and the geography of a culture, each man must be his own artist, his own scientist, his own historian, his own navigator (1965, pp. 115-116).

"Education," Bruner concludes, "must...be not only a process that transmits culture but also one that provides alternative views of the world and strengthens the will to explore them" (1965, p. 117). Our educational system does well in transmitting what has been learned in the past; but it does much less well in developing the student's ability to use his knowledge to inquire and innovate. Hence educators are confronted with a fundamental problem: we assert the importance of developing the student's ability to conduct independent inquiries in response to problems arising in the world around him; but we have done little, directly at least, to develop this ability. Divorcing instruction from "life activities" and minimizing "the pleasures and excitements of cognition" seems to characterize education in other fields as well as rhetoric. Indeed, we might argue that the problem in rhetoric is a special instance of this larger educational problem.

Chapter Two

Hypotheses and Predictions

Any solution to the first problem must redefine the activity of writing as an effort to understand and to communicate what has been understood; to put it another way, it must provide for instruction in what amounts to a modern art of invention that can be brought to bear on genuine problems students face as thinkers and participants in a highly diverse society. Any solution to the second problem must provide all students with instruction which has as its primary objective the cultivation of their ability to use their knowledge as a basis for original inquiry. A single solution to both problems would be desirable since it would have the great advantage of economy.

It is our belief that tagmemic rhetoric is potentially a solution to both problems. For it provides a comprehensive theory of the rhetorical process and the means for increasing the student's ability to carry it out, including a fully developed art of invention. The wide range of "real world" problems which may be dealt with in rhetoric courses provides an opportunity to develop the student's ability to inquire into the kinds of problems he must face as an adult. Since rhetoric, even in its present diminished form, is required of all students at every level of education, it offers an opportunity for eventually

providing all students with instruction in the art of original inquiry.

But before it can be asserted that tagmemic rhetoric does in fact offer one possible solution to both problems, it must be demonstrated (a) that it does increase the student's ability to inquire into ill-defined problems (i.e., problems whose dimensions are imperfectly known, for which several reasonable answers may be possible, and for which there are no rules for solving) and (b) that it does improve the student's ability to write clear, persuasive discourse embodying the results of his inquiry.

The goal of this research is, therefore, to determine whether instruction in tagmemic rhetoric, and in particular tagmemic invention, produces significant improvements in the five abilities listed below. The predictions associated with the five abilities and their attendant tests will be discussed in detail in Chapter Four, "Testing Methods and Results."

I. *The student's awareness of problematic (i.e., dissonant) situations in his own experience.* Three predictions were made to determine whether there was an increase in his awareness of problematic situations. *Prediction 1:* In a given time period the student will be able to note more problematic situations in his personal experience (i.e., cognitive dissonances arising out of his perception of complex, or ambiguous, or anomalous data) at the end of the semester than at the beginning. *Prediction 2:* The student will redirect his attention in his

reading from miscellaneous features to features which induce problematic situations. Although not told to do so, he will voluntarily note in his "reading log" more problematic situations at the end of the semester than at the beginning. *Prediction 3:* When presented with complex (ambiguous, anomalous) data, the student will be able in a given time period to note more problematic situations at the end of the semester than at the beginning.

II. *The student's ability to analyze and state problematic situations and their relevant unknowns.* *Prediction 4:* When asked to state a problem clearly and precisely for a specific audience, students at the end of the semester will be better able to formulate problematic situations with clearly dissonant elements and unknowns which clearly derive from the problematic situations (an "unknown" being the question that must be answered to eliminate the problematic situation); furthermore, they will be able to do so in such a way that the audience will understand the problem.

III. *The student's ability to explore problematic data efficiently and adequately.* To determine whether this ability improved, three predictions were made. *Prediction 5:* The student's exploration of problematic data will reflect the various perspectives called for by the tagmemic discovery procedure. This prediction was made to determine whether the students were using the procedure, since we cannot expect that changes in the ability to explore data will reflect the characteristics of the

procedure if it has not been used. *Prediction 6:* In a given time period students will be able to produce more discriminably different observations about the problematic data at the end of the semester than at the beginning. Effective exploration requires not only making many observations but many different kinds of observations, a process often referred to as "recentering" or "decomposition." *Prediction 7:* At the end of the semester, a student interrupted in his exploration will require upon returning to it less "warm-up time" and spend less time on previously explored lines of inquiry. Since the tagmemic procedure specifies a set of interrelated lines of inquiry, the inquirer should be better able to keep track of what he has done and what remains to be done, thus eliminating wasteful repetition.

IV. *The student's ability to test hypotheses for adequacy.*

Prediction 8: At the end of the semester, student arguments will contain a closely related set of features reflecting an increased ability to test hypotheses (for example, the hypothesis will answer the question posed in the problem, alternative hypotheses will be considered...).

V. *The student's ability to induce understanding and acceptance by various audiences of the problem, hypothesis and reasons for believing it.* *Prediction 9:* Readers for whom the pre- and post-test arguments are written will rate the latter more acceptable than the former.

The last objective and prediction require further explanation, since the students were given no instruction in the skills usually thought to be necessary to achieve the objective. That is, no formal instruction was offered in grammar and usage, sentence and paragraph development, logic, audience analysis, methods of persuasion, and arrangement. We were interested in whether the students' ability to write clear and persuasive discourse improved even though they were given instruction only in the tagmemic discovery procedure. Or to put it another way, we were interested in whether Plato was right in his insistence on the priority of thinking in the production of effective discourse.

Chapter Three

The Experimental Course

The subjects of this study were twelve students in a rhetoric course required of all seniors in the College of Engineering. The course was one of six offered by the Department of Humanities in the fall semester, 1971, all of which had the same description in the College catalogue. No attempt was made to screen the students, nor were they told that they were taking part in an experimental study. They met for fourteen weeks, three times a week.

The Course - Goals

The goals of the course, presented to the students at the first meeting (see Appendix A) were appropriate rewordings of the instructional goals discussed earlier on pages 4 to 8:

1. to increase your awareness of problematic situations arising out of your own experience;
2. to increase your ability to analyze and state problematic data efficiently and adequately;
3. to increase your ability to explore problematic data efficiently and adequately;
4. to increase your ability to test hypotheses for adequacy; and
5. to increase your ability to induce understanding and

acceptance by various audiences of the problem, hypotheses, and reasons for believing them.

The students were told that, although the course was concerned with both the art of systematic inquiry and the arts of communicating to various audiences what has been learned, the emphasis would be on the former. Or to put it another way, the course was concerned with the entire *rhetorical process*, the process during which one moves from the perception of a problem through the process of inquiry to a finished discourse designed to convey the results of the inquiry to a specific audience; but the focus of attention would be on the *process of inquiry* and procedures by which it can be made more efficient and effective. The way the five goals are stated suggests this emphasis: the first four, which are skills of inquiry, are stated much more specifically than the last, which encompasses all the remaining skills necessary for carrying out the rhetorical process.

The Course - Means

Isocrates wisely argued that the development of skill in rhetoric requires native ability, technical knowledge, imitation of models, and practice. The technical knowledge and models were supplied primarily by the first seven chapters of Young, Becker and Pike's *Rhetoric: Discovery and Change* (1970). Chapter 1 provides a brief history of rhetoric and introduces the concept of the rhetorical process. The next six chapters

are designed to help the student understand and control the process of inquiry. They provide extensive discussions of the stages of the process and heuristic procedures for increasing one's control over each stage; i.e., systematic discovery procedures requiring both reason and intuition in their application. (The remaining nine chapters of the book, which are concerned with writing for specific audiences, organization, techniques of argument and persuasion, and editing, were not taught, nor was any instruction given the students in these matters. However, various audiences were specified in paper assignments and serious errors in style, usage and structure were noted on the papers though not corrected.)

But reading about a skill, discussing it, and studying instances of its application are not sufficient to develop the skill, though they are necessary. For knowing *what* is not the same as knowing *how*. Learning a skill requires practice. Developing a skill requires repetition of a process in a variety of different situations; thus a functional redundancy must be built into the plan for any course designed to develop skills. In the plan for the course (Table I), the list on the left side describes the skills to be mastered and the five columns reflect the assumption that mastery requires practice. Each student was asked to engage in the entire rhetorical process five times, each cycle beginning with the isolation and analysis of a different problem arising in the student's own experience and ending with one or more essays written for different audiences. During

Table 1

Cycles (and numbers of meetings devoted to each)		1 (6)	2 (7)	3 (15)	4 (5)	5 (4)
Instructional Objectives	Rhetorical Process					
	Process of Inquiry					
comprehension of pervasive concepts		Chap. 1--"The Domain of Rhetoric." Discussion of nature and history of rhetoric, focus of course, and rhetorical process.	Chap. 2--"The Writer as Interpreter of Experience." Discussion of experience as a transactional process, of hierarchy, and of focus.	Chap. 4--"The Process of Inquiry." Discussion of and exercises in the nature of the process.		
increased awareness of problematic situations in own experience		Brief discussion of the significance of problems in rhetorical process. Tests 1a, 2a, 3a	Brief discussion of problematic situations.	Chap. 5--"Preparation: Identifying and Stating the Problem." Discussion of the origin and nature of problems.	Student presentations in class	Tests 1b, 2b, 3b
increased ability to analyze and state problems		Test 4a		Discussion of and exercises in analyzing and stating problems. (Chap. 5 cont.)	"	Test 4b
increased ability to explore problematic data effectively		Brief discussion of the significance of exploration in rhetorical process. Tests 5a, 6a, 7a	Chap. 3--"Toward Understanding and Sharing Experience." Discussion of and exercises in systematic exploration using CVD procedure.	Chap. 6--"Preparation: Exploring the Problem." Discussion of and exercises in systematic exploration using the 9-cell tagmemic procedure.	"	Tests 5b, 6b, 7b
increased ability to formulate and test hypotheses		Brief discussion of origin and nature of hypotheses and significance in rhetorical process. Test 8a: Paper 1		Chap. 7--"Verification: Evaluating Hypotheses." Discussion of and exercises in formulating and testing hypotheses.	"	Test 8b: Paper 9
increased ability to induce understanding and acceptance by various audiences of results of inquiry		Test 9a: Paper 1	Chap. 3 Brief discussion of some prerequisites for communication. Papers 2, 3	Papers 4, 5, 6	Papers 7, 8	Test 9b: Paper 9

Empty cells indicate that no class work was devoted to the relevant instructional objective.

Chapters referred to are from Young, Becker, and Pike, *Rhetoric: Discovery and Change* (New York: Harcourt, Brace and World, 1970).

the first three cycles there was an increasing amount of detailed instruction, as can be seen from the number of days spent on each cycle and what was done to teach each of the skills. In the last two cycles the students were asked to demonstrate that they could engage in systematic inquiry independent of instruction, first in class presentations and then in an extended final examination.

Paul Fitts (1964, pp. 244-283) has proposed that learning a complex skill progresses through three phases along a continuum. In the "early phase" one learns what the skill is; in the "intermediate phase" he has practiced enough to develop some proficiency, though he still makes mistakes and must think about what he is doing. In the "late phase" he makes few errors and is so proficient that he no longer need think about technique. By the end of the course we hoped that each of the students would be well into the second phase. We also hoped that repeated experience in genuine inquiry would lead them to discover the intrinsic rewards in solving complex problems for themselves.

Determining whether instruction in tagmemic invention produced significant changes in the five skills required the use of identical tests at the beginning and the end of the course. It also required that the tests be unobtrusive--that is, the tests had to appear to be routine parts of the course. For it was essential that the students not know they were participating in an experiment. If they did, their behavior in the course could not be considered normal. We all act differently if we

know that we have been singled out for special attention.

The cyclical structure of the course allowed us to test the same skills twice, using virtually identical tests, and to do so without arousing the students' suspicion that there was something unusual going on. They were told at the beginning of the first cycle that they were going to be "walked through" the entire rhetorical process in a short time and without instruction. One purpose of this, they were told, was to give them quickly a sense of the whole process, which would be studied later in detail. A second purpose was to demonstrate that they were already able to carry out the process upon entering the course; we wanted them to understand that the course was designed not to develop totally new skills but to improve skills they already had. The last cycle of the course was presented as the final examination, which required that they carry out the process again without instruction.

Appendix B is the detailed course syllabus, a copy of which was given to each student. It presents the daily assignments, daily objectives related to the five course objectives, and optional self-tests, which enable the student to determine for himself whether he has learned well. Appendix C contains the assignments for the nine papers required for completion of the course.

Chapter Four

Testing Methods and Results

General character of the testing methods.

We anticipated that the measurements taken in this experiment would be relatively gross and non-discriminating in important respects, but that they would furnish an essential basis for further refinement. The general strategy followed in all the testing procedures was to have students perform the same task twice, once early and once late in the term. As was pointed out in Chapter Three, the tests were designed in such a way that the students were unaware that they were participating in an experiment. Instructions for the tasks--identical in both instances--were written and distributed to each student. All scoring of results was done at the end of the term, with scorers and judges ignorant of student identities and of the time when the task was performed.

We based most of the tests on the students' analyses of two short stories--"Subpoena" and "A Film" both by Donald Barthelme; this was necessary to provide experimental controls and insure comparable data on pre- and post-tests. (Copies of each story can be found in Appendix D.) The stories were judged to be roughly equivalent in length, intended audience, vocabulary, and complexity of meaning. In the first week of the

term, one-half of the class (Group 1) worked with "Subpoena" and the other half (Group 2) with "A Film." Students began by listing the problems they found in trying to understand the story; they then chose one problem and analyzed and stated it; finally, they wrote brief essays based on the analysis. In the last two weeks of the term, the test passages were switched, Group 1 going through the entire sequence with "A Film," and Group 2, with "Subpoena." We assumed that the two halves of the class were roughly equivalent since it was divided alphabetically. Copies of each of the products generated by this procedure were typed with a uniform format, and random numbers were substituted for the students' names and dates of composition. The bases for the remaining tests--student responses to a variety of personal experiences--are discussed below.

The various scoring and judging operations conducted in the study were dictated by the predictions discussed in Chapter Two. At all points, inter-judge reliability was investigated before further analysis was done. In general, three kinds of comparisons were made. 1) Pre- and post-test results associated with both stories, across different groups of students. This procedure tests the overall development of skills and knowledge of the class as a whole. 2) Early and late products of the same student, with the stimuli varying. This tests changes in the individual student's skills and knowledge. 3) Occasionally, results associated with a particular story ("Subpoena" or "A Film"). This was to determine whether, for example, there were in fact significant differences in difficulty between the stories.

Instructional objective I.

The first objective was an increased awareness of problematic situations arising out of one's own experience. The tests were based on the assumption that if awareness increased, more problematic situations would be identified in a given period of time. Three tests were used to evaluate achievement of the objective.

Test I. Students were instructed to list problems that they were aware of in any domain of their experience and to specify whose problem each one was. The complete instructions are contained in Appendix E. They were given twenty minutes for the task and were asked to number each problem as they wrote it down. The task was carried out on the sixth meeting and again on the last meeting of the class. Both times the students wrote for the entire twenty minutes.

Scoring consisted of recording the number of problems written. In the post-test, four students identified more problems than in the pre-test; six identified fewer; and two gave the same number. The results were the opposite of our expectation. However, the post-test problem statements were consistently longer and more complex. The students seemed to be more engaged with the problems and not to be simply setting down convenient labels. This suggested that, although fewer problems were being identified, they had more meaning for the writer. Therefore, a second scoring procedure was developed.

One reason for *not* being consciously aware of problematic

situations is that they often make us uncomfortable. The desire to avoid pain may result in an unwillingness to perceive such situations; or if one does, he may refuse to acknowledge them as his own, ascribing them to other people, other places, other times. This reasoning led us to investigate the "immediacy" of the problems for the students. Six levels of immediacy were postulated, ranging from "felt difficulty in one's self at the present time" to a timeless logical inconsistency in some abstract scheme. The scoring criteria are discussed fully in Appendix F.

One of the experimenters scored students' statements twice, but the two scorings into six categories did not agree enough to serve as a basis for making judgments. However, by combining categories 1 and 2, 3 and 4, and 5 and 6, agreement reached the 85% level. A pre-post comparison was then made of the $\frac{1+2}{5+6}$ ratios, and an increase from .52 to .72 was found for the class as a whole. Data from two students had to be discarded; of the remaining ten, the ratios for six increased and for four, decreased. A Wilcoxon matched-pairs signed-ranks test gave a probability of .08--a little short of the accepted .05 mark, but close. It was concluded that fewer problems were identified per unit time in the post-test, but there was a tendency toward greater involvement with those that were written down and somewhat more willingness to examine the complexity of each.

Test 2. It was desirable to obtain an additional measure of the personal discomfort that problematic situations created

for the students. Therefore, they were asked to keep a reading log--a running record of personal reactions to the readings in this and other courses. (See Appendix G for the instructions.) The emphasis was on "personal reactions," and no mention was made in the assignment of problem statements of any kind (as distinct from the procedure in Test 1). We sought to answer two questions: "To what degree do students voluntarily note problems? And to what extent do they accept them as *personal* rather than remote abstractions?"

There were three submissions of the log for faculty comments, during the second, sixth, and thirteenth weeks of the course. The reader-commentator, one of the judges, was unaware of the nature of the critical data being sought. He was told only to comment on the logs as he would on journals frequently kept in conventional courses in rhetoric and literature.

With all evidence of student identification and time of submission removed, one of the experimenters scored each of the logs four times in a three-month period, using the same criteria as in Test 1. On the average, he was able to place a log entry in the same category 81% of the time--a satisfactory figure. The results tend to support those of Test 1. From the first to the third submission, the overall ratio of the number of problems to the number of words *decreased*. Of twelve students, one had equal ratios, seven showed decreases, and four showed increases. But again students appeared to give more attention to the examination of individual problems, rather than simply noting them.

To answer the second question, the problem statements were analyzed for immediacy using the same procedure as in Test 1. The ratio of "more immediate" problems (combined categories 1 and 2) to "more remote" problems (combined categories 5 and 6) increased from first to third submission. This means that for a given number of problems a greater proportion was perceived as personally involving, or more immediate, to the writer. Four of twelve students had either equal ratios or inadmissible data (ratios involving zero in either numerator or denominator). Of the remaining eight, seven showed higher ratios at the end. By sign test, the probability of this occurring by chance is .07--again just a little short of statistical significance.

We concluded from Tests 1 and 2 that students at the end were engaging in more sustained examination of individual problems, so that in a given time period fewer problems were listed. Students also seemed to exhibit somewhat greater comfort in admitting and accepting problems into their own cognitive systems.

The remaining tests were based on the student analyses of the two short stories mentioned earlier. *Test 3.* Students were asked to list problems, difficulties or ambiguities they found in either "Subpoena" or "A Film." This test differs from the preceding two in that it calls for problem perception under more controlled conditions. Again, the expectation was that a greater number of problems would be perceived in the post-test.

On the second meeting of the course Group 1 was given a copy of "Subpoena", and Group 2, a copy of "A Film" to read carefully. At the following meeting they were allowed twenty minutes to list the problems that came to mind in connection with the story. (See Appendix H for the instructions.) During the next to the last week Group 1 worked with "A Film" and Group 2, with "Subpoena"; and the same procedure was followed. All lists were typed with the same format; all names and dates were removed, and random numbers were assigned each list.

The lists suggested that the students had a rather hazy idea of what a problem statement is, some statements being merely expressions of uneasiness, some being hypotheses in question form, some being totally irrelevant; others, however, were genuine, if abbreviated, problem statements--either problematic situations or statements of unknowns. The lists were scored by four judges, who were asked to categorize each statement in each list as a "felt difficulty," a "problematic situation," an "unknown," a "hypothesis," or "other kind of comment." A three-hour practice scoring session was held, using lists other than those produced by students in the experimental course. ~~where~~ disagreement occurred, instructions were examined for ambiguity, and necessary additional instructions were adopted. (The complete instructions, including definitions of the five categories, are contained in Appendix I.) Then each judge scored all student-lists independently. A meeting was then held to arbitrate any differences in categorization.

As in Tests 1 and 2, the number of statements by the students *declined* (contrary to the prediction) though not by a significant amount. On examining the data in more detail, it was found that "A Film" consistently elicited more statements than did "Subpoena", 108 to 86. This difference was analyzed statistically by the sign test, but was found non-significant. Examination of the student lists indicated, as in Tests 1 and 2, more systematic thinking in the post-test, more careful analysis and more precise statements, suggesting greater control of the process of inquiry. Table 2 shows the number of each kind of statement found in pre- and post-tests.

Table 2

Number of student statements in each of five categories

	Felt difficulty	Problematic situation	Unknown	Hypothesis	Other	Total
Pre-test	21	4	56	43	18	142
Post-test	0	15	84	31	0	130

A chi square test, applied to the two distributions, gave a value of 109.93, which, with 4 degrees of freedom, indicated a probability that this difference could have occurred by chance less than once in a thousand times ($p < .001$).

Note especially the great concentration of post-test results in the "problematic situation" and "unknown" categories, and the dramatic decreases in the "other" and "felt difficulty" categories. Ability to state problematic situations and related unknowns is essential to both the analysis and communication

of problems; a combination of the two constitutes a complete problem statement, although one or the other is often used in "real-world" situations as a kind of short form. Felt difficulties are the necessary first stage of inquiry, but are important only as motivation for subsequent inquiry. They are merely indications of discomfort or puzzlement and involve no effort to analyze the difficulty. The absence of "other" statements in the post-test indicates less random behavior in the presence of problematic data and greater understanding of the nature of problems and inquiry.

Overall, then, the evidence from three complementary tests--Test 1, the list of "real world" problems; Test 2, the log of reactions to readings; and Test 3, the list of problems associated with the stories--does not indicate attainment of the first objective; students apparently did not become more aware of problems. However, they did become significantly more sophisticated in dealing with the problems they identified.

Since the two short stories, "Subpoena" and "A Film," served as the bases for nearly all the tests conducted in the experiment, a closer look at their comparative difficulty for the students is appropriate. Table 3 presents the relevant data:

Table 3
Average number of statements per student

	Film	Subpoena
Pre-test	8.7	8.8
Post-test	9.8	5.5

The Mann-Whitney U test was applied twice--to compare the two

averages on the pre-test and then to compare them on the post-test. The pre-test difference is non-significant; the post-test difference gives a probability of .066--nearly significant. It appears that "A Film" might indeed have been a more difficult story for the students to deal with, but that they were not sensitive to this fact early and were unskilled at examining such materials closely. This had apparently changed at the end of the term, with "Subpoena" giving less trouble and "A Film" being seen as more problematic. Comments in class by some of the students lend support to this conclusion.

Instructional objective II.

The second objective was to develop the students' ability to analyze and articulate problematic situations and their relevant unknowns. One assumption in the theory upon which the experimental course was based is that an adequately stated problem has the following characteristics: a statement of the problematic situation, in which the inconsistent elements are stated as incompatibles (e.g., X but Y; X, however Y; X conflicts with Y); and an explicit statement of the unknown, usually as a question, the answer to which will eliminate or at least mitigate the problematic situation. One test was conducted.

Test 4. After the students had listed problems arising during the reading of one of the stories (Test 3), each was asked to select a problem that seemed worth investigating further and to write "a concise paragraph stating the problem so a hypothetical group of English teachers can understand it." (See

Appendix H for the instructions.) They were given twenty minutes for the task. The pre-test took place during the first week of the courses, and the post-test, during the next to the last week.

The four judges were given detailed instructions for scoring the paragraphs, consisting of four questions about the characteristics of an adequately stated problem mentioned above. They were also asked to rate how well they understood the paragraphs on a 10-number scale. (The complete instructions to the judges are contained in Appendix J.) As always, all identification was removed before scoring. The judges scored a practice item, followed by a joint analysis of the results. Then they individually scored the entire set of twenty-four paragraphs; the results were grouped and averaged, where appropriate. The data from the four questions (e.g., "Is an unknown stated?") are reported in terms of the number of "Yes" responses given by the judges.

The first issue that must be dealt with is the reliability of the scoring. There were twelve students with two paragraphs each, four questions and four judges answering each question, thus making 384 the maximum possible number of "Yes" responses. Of these, there were 351 agreements based on individual scoring (before a conference to resolve differences). This represents a reliability of 92%--more often than nine times out of ten the four judges gave the same answer to a given question. Table 4 presents the number of "Yes" responses on the pre- and post-tests:

Table 4

Number of positive responses by judges

	Problematic situation?	Components incompatible?	Unknown stated?	Unknown relevant?
Pre-test	11	9	16	2
Post-test	40	28	44	31

The maximum possible number in each cell of the table is 48.

As a direct test for achievement of the objective, a Wilcoxon matched-pairs signed-ranks test compared the number of "Yes" responses to each student's pre- and post-tests. This gave a "T" of 1.5, which is highly significant ($p < .005$). Thus there was a clear change toward better analysis and articulation of problems during the term. The understandability of the paragraphs also showed significant improvement. The average scale position on the pre-test was 2.8 (indicating the students' statements were difficult to follow); the post-test average was 7.4 (much more understandable). A t-test of the difference between the two means gave a value of 5.201, which is significant at the .01 level.

These results were largely independent of the story being analyzed by the student. Table 5 presents the mean number of positive responses (of a possible 16) by the four judges to the four questions combined and the mean "understandability" ratings given to the pre- and post-test problem statements written about "A Film" and "Subpoena":

Table 5
Mean number of positive responses and
mean understandability ratings

	"Subpoena"		"A Film"	
	Questions	Understand- ability	Questions	Understand- ability
Pre-test	2.7	2.8	3.5	2.9
Post-test	11.5	7.7	12.0	7.1

We may conclude that there was a striking improvement in students' ability to analyze and articulate problems and that the ability was equally applicable to either story.

However, while it is useful to be able to analyze problems in the context of a class exercise, it is even more important to be able to use the same operations in writing essays designed to communicate what one has learned. That this could be done successfully was shown in two essays on the short stories produced by each student, one turned in on the eighth meeting and the other on the last class meeting. All dates and names were removed from the twenty-four papers; they were then typed with a uniform format and assigned random numbers. All were scored at the same time. We assumed that the students' ability to analyze problems could be evaluated through the responses of the judges to three questions (contained in the questionnaire in Appendix P): "Is a problematic situation stated?" "Is a question (or something to be discovered) posed?" "Is a hypothesis (i.e., an answer to the question) stated?" Since the data in all three cases were in "Yes/No" form, they could be pooled

across judges. However, the first question, as always, is the reliability of the judges' scoring. There were twenty-four essays, three questions and four judges, making a total of 288 individual responses. Of these, there were thirty-four disagreements, or a reliability of 88%. Given this consistency in the data, pooling was carried out and an analysis conducted on the number of "Yes" responses made to each student's early and late essay. A Wilcoxon matched-pairs signed-ranks test was run, and the results were highly significant ($T=0$, $p < .01$). We may conclude that the students learned not only to carry out the desired analyses as class exercises but also to use the same processes in their production of essays.

Instructional objective III.

The third objective was to develop the students' ability to explore problematic data efficiently and adequately. We assumed that mastery of the nine-cell discovery procedure would contribute to this end. (See Appendix K for a summary of the procedure.) Further, we reasoned that the objective implied that the inquirer would become more adept at shifting perspectives on problematic data, at exploring unfamiliar territory adequately, and at continuing the task efficiently after an interruption. All of these were expected to result from using this procedure. Three tests were devised and carried out.

Test 5. This test was designed to determine whether students were using the nine-cell procedure in their explorations of

problematic data in the stories. It required the identification of the specific cell in the procedure that was represented in each student observation about the data.

On the third meeting of the course, students were asked in class to "Consider the short story again in terms of the problem you explained in the paragraph you wrote last hour. List the ideas that come to mind as you explore the story. Number each observation." At the end of ten minutes students were asked to mark the observation currently being written; they then continued for ten minutes more. At the next meeting, the protocols were returned to the students, and the procedure was repeated for another twenty minutes. (See Appendix L for a copy of the instructions.) The testing procedure was repeated on consecutive days during the next to the last week of the course.

Thus the observations originated under the various conditions indicated by the cells of Table 6.

Table 6
Design of Test 5

	Pre-test				Post-test			
	Session 1		Session 2		Session 1		Session 2	
	1st 10'	2nd 10'	1st 10'	2nd 10'	1st 10'	2nd 10'	1st 10'	2nd 10'
Written in exploration of "A Film"								
Written in exploration of "Subpoena"								

Each observation on the students' lists was typed on a 3 x 5 card and assigned a random code number by a secretary; thus the scorer, one of the experimenters, was ignorant of the identity of the student and the time the observation was written. The scorer's task was to assign each observation to a specific cell of the nine-cell procedure. The task required unequivocal identification of the unit being explored and reliable assignment of the observations associated with the unit to the cells. This proved to be extremely difficult. A very detailed set of scoring rules was developed (see Appendix M), but repeated application by one of the experimenters at different times resulted in only 50% of the observations being assigned to the same cell on any two scorings.

The attempt to secure sufficient scoring reliability was continued for some time, because this test laid the groundwork for two subsequent tests of the benefits of using the heuristic procedure to guide inquiry into problematic data--the outcomes predicted in Tests 6 and 7. The lack of reliability of scoring was especially important in view of the fact that successful cell assignment would permit finer discrimination in the next two tests. We finally concluded that the data, as collected, was not in a form that would allow this to be done. There was no data which permitted unambiguous assessment of the students' early and late ability or their inclination to use the method of exploration called for by the heuristic procedure. Because of this, a new set of instructions to students was formulated,

although not used in this test. (See Appendix N.) We recommend that some version of these instructions be used in future studies. If this is done, it is probable that observations by students could be assigned to the various cells reliably; hence it would be possible to determine whether they were using the procedure.

Test 6. This test was designed to determine whether there was an increase in the number of discriminably *different* observations made in a given time period, indicating a wider-ranging analysis. We had planned to use the results of Test 5 here; we expected that students using the heuristic procedure would make more observations which were clearly different in kind than students who were not using it.

Four judges were given detailed instructions for sorting the set of 3 x 5 cards, each containing one observation, into categories on the basis of a significant shared feature. Each judge sorted twenty-four groups, representing pre- and post-test work by each of twelve students. (Appendix O contains the complete instructions.) The judges performed the sorting task in random order--that is, they did not all first sort the observations of Student X made in the pre-test, then those of Student Y in the pre-test, etc. We expected that more categories would be found in the post-test, which would indicate that the students were shifting perspectives on the problematic data more often.

We first sought to determine inter- and intra-judge reliability in sorting in terms of *number* of categories. Although

the judges doubted their ability to repeat their original categorizations, this was not an important concern, since the number of categories was the focus of interest rather than the particular composition of each category. As an assessment of intra-judge consistency, Table 7 presents the average number of categories each judge used at various stages of the task:

Table 7

Average numbers of categories created by four judges

	Stages of sorting task				
	First 25%	Second 25%	Third 25%	Fourth 25%	Overall
Judge C	6.7	7.8	5.6	5.0	6.6
Judge K	6.7	7.8	9.8	7.2	7.9
Judge L	7.8	6.5	8.2	7.1	7.4
Judge S	6.8	6.3	6.8	6.0	6.6

In all cases, intra-judge variations could well be due to the specific card groups sorted. All categories appeared to be internally consistent. When we consider inter-judge reliability, we see that Judges C and S tend to be more inclusive, to make fewer discriminations than the other two. Combining the data of all judges and averaging provides a reasonable picture of the variety of approaches shown by the students in making their observations.

The average number of categories per student in the pre-test was 6.3; in the post-test 8.0--which supports the prediction. The number of categories found by the judges increased from

pre- to post-test for ten students and decreased for two. By the sign test, this result is statistically significant ($p = .038$). In addition, the mean number of observations per student also increased from pre- to post-test (from 17.4 to 28.1). Thus students were more productive in making observations about the stories, and they were also taking more points of view which were discriminably different while doing so.

We conclude that the course gave rise to an increased variety of approaches--a greater tendency to thinking in different ways. We should point out, however, that this result correlates strongly with increases in the absolute number of observations made. While the average number of different categories increased by 27% (from 6.3 to 8.0), the average number of observations increased by 61% (from 17.4 to 28.1).

Test 7. This test was designed to determine whether there was a decrease in the amount of time expended on previously explored lines of inquiry and a reduction in "warm-up" time required upon returning to the task after an interruption. These changes would indicate systematic qualities of exploration (i.e., the use of the nine-cell procedure in directing inquiry). The test thus has two parts.

The first part deals with the degree to which the student *continues* to be able to take new viewpoints in exploring problematic data. We reasoned that this could be assessed by finding the degree to which observations written in the first and second sessions (with three days intervening) were seen by judges as

belonging in the same categories. The fewer the observations in Session 2 that were cast into categories originally created in Session 1, the greater the student's ability to "break set" and look anew.

The results of the sorting task in Test 6 supplied the necessary information. We found that in the pre-test 55% of students' observations in Session 2 fell into categories of ideas originally explored in Session 1; in the post-test, the figure is 64%. Thus, the tendency is in the opposite direction to the prediction, though the difference is statistically insignificant.

We also analyzed the data from another point of view. "New exploration" should be negatively related to the number of *consecutive* observations that were seen by judges as falling in the same category--that is, the shorter the "run," the more frequent the shifting of viewpoint. No consistent pre- and post-differences were found; roughly one-half of the students showed shorter runs in the post-test, and one-half, longer.

A third analysis was based on the assumption that the degree of "de-centering" would be positively related to the proportion of observations in the final ten minutes of Session 2 that were seen by judges as creating new categories. Here, too, non-significant differences appeared, with 22% of the pre-test data meeting this criterion and 19% of the post-test data.

We must conclude that there was no change in the tendency of students to return to previously explored domains of thought. While their term-end productions do show an increase in the

number of observations made and a greater variety of conceptual viewpoints (as shown in Test 6), they also continue to re-examine familiar fields. Indeed, they seem to go for depth rather than breadth of exploration, as shown by the consistent indicators of "new exploration."

The second part of Test 7 deals with the degree to which students evidenced a need for "warm-up"--for re-acquisition of the appropriate conceptual set--when exploring problematic data after an interruption. The results of the sorting task in Test 6 were also used here to test the prediction that warm-up time would be less in the post-test than in the pre-test. The appropriate comparison is between the number of observations listed by the student in the last ten minutes of Session 1 and those in the first ten minutes of Session 2. If the heuristic procedure contributes to efficiency of exploration, the number of observations made in the two periods should be approximately equal in the post-test, in contrast to an expected decrease from the first period to the second in the pre-test. The results were contrary to the prediction. Students in the pre-test wrote an average of .9 *more* observations in the first ten minutes of Session 2 than in the last ten minutes of Session 1; in the post-test, they produced an average of 2.25 *fewer* observations. Only five of the twelve students showed the predicted effect, and it was small.

We must conclude that students did not change appreciably in the degree to which they retraced familiar ground during their exploration, nor did they reduce their warm-up time when

returning to the task after an interruption. It must be remembered, however, that these results are taken from the entire class. Some of the students were clearly more skillful in using the heuristic procedure than were others. If the results of Test 5 had allowed us to isolate these students, the predicted effect might well have been found for those on the upper end of the distribution.

The evidence does not support the predictions related to the third instructional objective, at least as tested. Perhaps the basic problem was the collapse of Test 5; that is, we could not determine which of the cells in the procedure were represented in students' observations. Hence it was not possible to differentiate between students adequately using the heuristic procedure and those who were not. The question of whether consistent use of the nine-cell procedure contributes to efficient and adequate exploration of problematic data cannot be answered at this time.

Instructional objective IV.

The objective was to develop the students' ability to test for adequacy hypotheses arising from exploration of problematic data. During the first week and again during the last week students were given assignments to write essays based on their exploration of either "Subpoena" or "A Film." The assignment in both cases was to state the problem and the hypothesis (i.e., the solution) developed during their inquiry and to explain and defend their position to a group of English teachers. (See

Appendix C for the assignments.) The essays were turned in on the eighth meeting and the last meeting of the course.

Test 8. All dates and names were removed from the twenty-four papers; they were then typed with the same format and assigned random numbers. Separate copies were given to each of the four judges who scored them for both Tests 8 and 9 by means of a questionnaire composed mostly of "Yes-No" questions and a 10-number scale of acceptability. (See Appendix P for the complete instructions for Tests 8 and 9.)

We assumed that the answers to eight questions in the series would provide an evaluation of the students' ability to test hypotheses for adequacy. These were:

1. How many different reasons does the writer provide as support of his hypothesis?
2. Is each reason relevant to the hypothesis?
3. Are the reasons provided sufficient to make the hypothesis credible to you?
4. Is there any aspect of the story which the hypothesis does not account for or is not consistent with?
5. Is the possibility of alternative hypotheses recognized by the writer?
6. Does he state an alternative hypothesis?
7. If "yes" to #6, does he explain why the alternative is less reasonable?
8. If "yes" to #7, is the explanation credible to you?

Three of the questions (#2, 7 and 8) produced too few entries

to yield useful information, so the test of the objective rests on the remaining five. A cursory examination of the data indicated that the variability between judges' evaluations made it unadvisable to attempt judgments of individual students' progress. Since the principal focus of interest was the relative performance of the group as a whole from pre- to post-test, the total of each judge's responses (across all twelve students) constituted the data that were analyzed.

Table 8 presents the average number of reasons provided by students in support of their hypotheses:

Table 8

Average number of reasons for twelve students
as seen by the four judges

	Judge C	Judge K	Judge L	Judge S	Average (all judges)
Pre-test	4.3	1.8	3.1	2.4	2.9
Post-test	6.2	3.2	4.0	3.0	4.1

Two results are clear: there was considerable variability among judges, and every judge found a greater number of reasons in post-test essays. A repeated measures analysis of variance of the data in Table 8 indicated significant differences associated with both time of test (pre- versus post-) and judges ($F(\text{time}) = 18.63$; $df = 1,3$; $p < .05$; $F(\text{judges}) = 21.04$, $df = 3,3$; $p < .05$). This means that significantly more reasons in support of hypothesis were cited in the post-test and that there were reliable differences between judges in their scoring patterns.

Data relevant to the remaining questions (#3, 4, 5, and 6) were all in dichotomous (Yes/No) form. Therefore a single repeated measures analysis of variance was run on the pooled data from all four items. Time of test (pre- vs. post-) was found to be highly significant ($F = 22.63$; $df = 1,3$; $p < .01$), but differences between judges were not. In summary, then, it is clear that there was a strong increase in students' ability to test hypotheses for adequacy, despite the fact the judges sometimes differed considerably in their scoring of individual essays.

Instructional objective V.

The goal was to develop the students' ability to induce understanding and acceptance in specified audiences of the problem, hypotheses, and reasons for believing them. The data for this test consisted of scale ratings of acceptability of each essay by the judges and were obtained from the questionnaires referred to in the report of Test 8.

Test 9. As in all cases of multiple judging of material that is not easily quantified, inter-judge reliability is the first issue to be explored. Even a cursory look at the data indicated extreme variability among judges in the assessment of the same essay, despite the detailed instructions (contained in Appendix P); in an extreme case, one essay was assigned scores from 2 to 10 on a 10-number scale. Therefore, the scale-rating differences between all pairs of judges were determined. These ranged from a mean of 0.9 (between Judges K and S) to 2.0

(between Judges K and C) on the pre-test essays, and from 1.8 (between K and S) to 3.5 (between C and S) on the post-test essays. Across all twenty-four essays, the average difference on a 10-number scale between all pairs of judges is shown in Table 9:

Table 9

Average differences between pairs of judges

Pair:	C-K	C-L	C-S	K-L	K-S	L-S	All pairs
	2.3	2.0	2.5	2.1	1.3	1.8	2.0

Bear in mind, these are *average* differences--for individual essays, variation was as much as 8 points on the scale. Therefore, measures were taken to obtain relatively unbiased estimates of the students' progress.

First, a scoring method used in some areas of athletics was applied. This involves disregarding the highest and lowest scores and averaging the remainder. When this was done, three students of twelve received the same average ratings on pre- and post-test essays; the remaining nine all received higher ratings on the post-test. By sign test, this result is significant at the .004 level.

The second analysis used the data from all four judges. This involved determining the number of judges giving higher ratings to the post-test essay than to the pre-test essay written by the same student, the number giving lower post-test ratings, and the number giving identical ratings. Of a total of forty-eight judgments, twenty-eight (58%) of those on post-tests were

higher, thirteen (27%) were lower, and seven (15%) were the same for both essays. If the alternative hypothesis is that equal numbers might be expected to improve and to deteriorate by chance, a chi square test gives a value of 5.488, which with $df = 1$ is significant at the .02 level.

Finally, a comparison was made between the average of the ratings given by each judge to the twelve pre-test essays and the average of his ratings assigned to the twelve post-test essays. Table 10 presents the relevant information:

Table 10

Average pre- and post-test essay ratings by each judge

	Judge C	Judge K	Judge L	Judge S	Average (all judges)
Pre-test	4.0	2.5	4.2	2.9	3.4
Post-test	6.8	3.8	5.3	4.4	5.1

The post-test average ratings of each judge is higher than his average pre-test ratings. A repeated measures analysis of variance of the total ratings by the four judges shows time of essay (pre- versus post-) significant at the .05 level ($F = 20.15$ $df = 1,3$); however, the differences between judges were not significant.

We may conclude that there was significant improvement from pre-test to post-test in the ability of the class as a whole to induce understanding and acceptance in this audience of the problem, hypotheses, and reasons for believing them. It is worthy of note that the average length of the pre-test essays was 2.0; in the post-test essays this increased to 3.9 pages.

In addition to testing the nine predictions, we sought to determine whether instruction in tagmemic invention affected the grammatical and stylistic qualities of the students' prose. We also investigated student perceptions of their experience in the course.

Analysis of grammatical and stylistic qualities.

One assumption we wanted to test in this study was that even the grammatical and stylistic quality of sentences could be improved as a result of greater involvement with the subject and a better understanding of it. "After all," remarked Walter Pater, "the chief stimulus of good style is to possess a full, rich, complex matter to grapple with" (1970, p. 258). And we had sought by means of instruction in the process of inquiry to enable the student to possess and grapple with such a matter.

We reasoned that the increased motivation to learn which attends inquiry into one's own problems is likely to result in more scrupulous writing, including more scrupulous grammar and style at the sentence level. Generally speaking, increased care in performing a task tends to accompany increased commitment to it; sentence errors are often the result of carelessness rather than ignorance of the basics of grammar and style--at least with high-caliber college students. Furthermore, certain stylistic errors (such as inappropriateness of word to context, imprecision, and lack of clarity and economy) frequently have their origin in an insufficient understanding of the matter being discussed.

We tested the assumption in the following way. When the four judges scored early and late essays for adequacy of analysis of the problem, ability to test hypotheses, and ability to induce acceptance of the problem and hypotheses, they also scored the papers for stylistic and grammatical features. (The detailed instructions, including the list of features to be scored, are contained in Appendix P.) Despite the specificity of the scoring instructions, wide disparities between judges were found. For example, one judge found two stylistic errors and another twelve in the same three-page essay. Table 11 compares the average number of stylistic and grammatical errors per page (across all students) found by each judge in the twenty-four essays:

Table 11

Average number of stylistic and grammatical errors per page found by each judge

	Judge C	Judge K	Judge L	Judge S	Average (all judges)
Stylistic errors					
Pre-test	1.2	3.1	5.9	4.9	3.8
Post-test	0.8	2.6	4.7	3.3	2.9
Grammatical errors					
Pre-test	3.4	10.5	9.3	10.1	8.3
Post-test	3.4	8.3	7.4	7.2	6.6

The average number of both kinds of errors decreased in frequency from pre- to post-test, and there were clear differences between judges in the average number of errors found. Two repeated measures analyses of variance showed that neither the

decrease in stylistic errors nor the decrease in grammatical errors was statistically significant; therefore the differences must be considered unreliable.

While there is abundant evidence that students were, in fact, producing more carefully reasoned and persuasive essays, there was little improvement in the stylistic and grammatical features we had singled out for study. We tentatively conclude that improvement in the stylistic and grammatical elements of writing can probably be achieved only through formal instruction--which was deliberately not done in this course.

Test of student perceptions.

We also collected data on the students' perceptions of (a) the instructor's teaching, (b) the course, and (c) changes they saw in themselves as a result of the course. On the eighth meeting and again on the last meeting students were asked to fill out a "Faculty and Course Evaluation." (They were told that the unconventional early evaluation would enable the teacher to correct weaknesses in the course while it was still in progress. A final course evaluation is routinely taken in all courses offered by the Department.) The form was composed in thirty-three statements, each followed by a 5-number scale, the lowest indicating strong agreement with the statement; the highest, strong disagreement. (See Appendix Q for a copy of the form.) Certain statements on the form were judged to be particularly relevant to testing the design and operation of the course.

In the early part of the course the students' activities had to be strictly prescribed and directed. This required the instructor to play a relatively authoritarian role, allowing little freedom and eliciting little student participation in class. During the later part of the course, especially in Cycle 4, students were given much more responsibility and became more active in controlling classroom procedures. We reasoned that if students perceived this as happening, the ratings on Statements 1 ("The instructor was an effective teacher"), 6 ("He encouraged questions and discussion in the classroom"), 8 ("He made himself available for student discussion outside the classroom") and 24 ("The instructor shared responsibility with the students for the conduct of the class") should have lower numerical values on the post- as compared with pre-test. This did, in fact, occur for all four statements.

In the first cycle of the course students were asked to engage in the process of inquiry without prior tutoring and while the conduct of the class was still relatively authoritarian. Because both of the conditions changed in subsequent cycles, we reasoned that the students' early perceptions of certain features of the course would be different from later ones. Statements 14 ("The overall quality of the course was good"), 19 ("The course required (1) much more (2) more (3) average (4) less than (5) much less time than was required for other courses of the same credit"), 20 ("The course had appropriate continuity, not skipping unrelatedly from place to place"), 21 ("The text

is relevant to understanding the course material"), 23 ("The home assignments were beneficial"), and 25 ("The course offered adequate opportunity to pursue your own interests and problems") were used to assess this idea. Pre- versus post-test results indicate that judgments of overall quality of the course improved, that the course was seen as requiring more work, that greater continuity was perceived, and that home assignments were seen as more beneficial. On the other hand, judgments about the utility of the text and about the opportunity for pursuit of individual interests were less favorable.

We also hoped that students would see the course as contributing in a general way to their intellectual abilities, but we expected that this contribution would be less apparent in the pre-test than later. Statements 26 ("What you learned in the course is likely to be valuable in many areas of your life"), 27 ("The course made it easier for you to recognize and admit it when you ran into something you did not understand"), 28 ("The course made you more willing to pursue problems which interest or trouble you"), 29 ("The course made you more interested in pursuing problems which interest or trouble you"), 30 ("The course increased your ability to deal with problems which interest or trouble you"), and 31 ("The course has led you to question the adequacy of your knowledge of the world") were formulated to test this notion. Students did report in the post-test a greater interest in investigating problems and a greater confidence in their ability to do so. However, they

thought that what they had learned was less likely to be widely applicable in their lives, that it would be more difficult to recognize and admit problems, that they would be less willing to engage in the investigation of problems, and that they were surer (rather than more questioning) of the adequacy of their knowledge of the world. Each of these latter four were contrary to expectations.

In summary, results on ten of sixteen "critical" items supported predictions; this proved statistically non-significant by sign test.

Recapitulation and conclusions.

The first instructional objective was not achieved in any great measure. According to the results of three different tests, there was no significant change in students' awareness of and sensitivity to problematic situations.

The second objective, the ability to analyze and articulate problematic situations, was clearly attained. The data indicate striking improvement from pre- to post-test.

The third objective, the ability to explore problematic data efficiently and adequately, was taken to imply: (a) a greater variety of ideas produced, as seen by independent observers; (b) fewer returns to previously explored domains of knowledge and experience; and (c) greater productivity of ideas following an interruption. Only the first was observed. Students were, indeed, changing perspectives and approaching their problems

from more different points of view at the end of the course than they were in the beginning. However, we were not able to determine whether this important result was directly related to use of the nine-cell procedure or to a general loosening of constraints on thinking.

The fourth objective was to improve the student's ability to test his own hypotheses for adequacy. Clear evidence was found that such improvement occurred.

The last objective was to enable students to write clearer and more persuasive essays about the results of their explorations. There was strong improvement from pre- to post-test in these "final products" of the rhetorical process.

INTERPRETATION OF THE RESULTS

Overview.

The results of the experiment provide clear support for the proposition that strong personal involvement in an intellectual activity and substantial knowledge of the subject tend to improve the quality of what is written. Even though no formal instruction was provided in conventional rhetorical and composition skills (such as usage, sentence and paragraph development, logic, methods of persuasion, and arrangement), English teachers regularly rated final essays more acceptable than initial ones. Students also improved in their ability to analyze problematic situations and state problems; and the results of their explorations of problematic data were more complex and varied; they became more sophisticated in testing hypotheses for adequacy; and they wrote essays that were more understandable and more persuasive at the end of the course.

The experiment, however, did not establish that the improved ability to explore problematic data was directly related to the nine-cell discovery procedure. Further study is required before any conclusions can be drawn. In addition, the tests did not indicate that the theory as presently formulated and the course as it was taught increased the students' sensitivity

to problematic situations; specific instruction directed toward this end is apparently needed. We also found that formal instruction in style and usage is probably necessary to bring about substantial improvements in the student's ability to produce stylistically and grammatically adequate sentences. Although students wrote more clearly and persuasively, they continued to make about the same number and kinds of stylistic and grammatical errors.

Discussion.

As we said, the first objective--increasing students' awareness and sensitivity to problematic situations--was not attained in any great measure. We were not particularly surprised that the students frequently failed to see difficulties that seem obvious to experts in a discipline. It is likely that the number of problems one admits to consciousness is a function of two factors--the need for psychological safety (admitting ignorance and bewilderment is often disturbing) and the number of dimensions of experience that are required to describe one's existence. The more complex our life-style is, the more problems and incongruities we are likely to find. The tagmemic rhetorical theory, as presently formulated, does not deal in any detail with sensitivity to problematic situations, but rather concentrates on analyzing and articulating such situations *after* they have been perceived. Test 3 showed that the number of expressions of felt difficulty in the post-test dropped; but it

also showed a substantial increase in the activities associated with coping processes. This indicates an increase in clarity and precision of thinking, reflecting the strongly intellectual bias of the course. By turning attention away from the affective components of the students' experience, the issue of psychological safety was in effect tabled.

At the same time, the course experiences seemed to expand the students' knowledge, in the sense that they were more perceptive about the problems they did note, more aware of what they knew that was relevant to the matter at hand and more willing and able to make use of it. The early problem lists were just that--lists of words or stock phrases; the later lists contained statements that were much more personal, complex, and thoughtful. It appears that the course complicated the students' lives--a not undesirable outcome for a humanities course.

The second instructional objective--to develop the student's ability to analyze problematic situations and their relevant unknowns--was achieved. The students seemed to understand both the nature of problems and their own problems better. And they acquired control over a systematic process for analyzing problematic situations, which contributed to better thinking and better essays. In future studies of the rhetorical theory, however, it would be desirable to have the students work with a much wider range of problematic data. Work in the class was restricted to literary problems in order to provide experimental controls. Since the course is intended to help students function

more effectively in their lives outside the classroom and since the inquiry procedure is perfectly general, greater scope for its use should be provided in the future.

The third instructional objective was to develop the students' ability to explore problematic data efficiently and adequately. Three tests were associated with this objective. The first was designed to determine whether the heuristic procedure was being used; the remaining two evaluated three deductions from the theory--only one of which was supported by the results. In the first of three tests (Test 5), great difficulty was encountered in trying to assign student statements to the various cells of the nine-cell procedure, which was disappointing. Since the procedure is central to tagmemic theory, we were particularly interested in this test. The instructions appear to have created at least some of the difficulty; they merely called for the student to "list the ideas that come to mind." We deliberately did *not* tell him to use the procedure as a guide to inquiry. (After the post-test one student remarked that he hadn't understood that he was supposed to use the procedure.) We were testing whether the student would choose to use the systematic procedure rather than whether the student could use it. Both kinds of information are needed. As indicated, it was very difficult to identify a given statement with a specific cell, perhaps in part because the statements were out of context; we had no way of knowing what prompted the statements. If the student had been told to produce a protocol of his thinking or to use a designated cell at a particular

point in his exploration of the data, there is reason to believe that we could make reliable judgments about whether he had done so successfully. It may be that the procedure is excessively complex, or at least too complex to be learned well in the allotted time and hence used confidently and willingly. It may also be that the questions and operations in the various matrix cells need to be stated with greater precision. However, the possibility should not be ignored that these statements cannot be made more precise. If this is true, perhaps, the underlying theory needs further development; one measure of the usefulness of a theory is the degree to which it leads to *testable* hypotheses.

It is also possible that the particular way one explores problematic data is not of crucial importance. A well-thought-out problem may be sufficient to assure progress. To separate the contribution of the problem statement from that of the exploration of the problematic data using the nine-cell procedure, we would need to compare essays written after only the first is learned with others after both are learned. The latter should be better in identifiable ways.

Test 6 showed a striking increase in the post-test in the number of observations made and the variety of perspectives assumed by the inquirers. This allows, but does not entail, the inference that the heuristic procedure was used and found helpful. It could be that the number of perspectives increases automatically when the number of observations increases.

It is true that the average number of observations *per category* increased from 2.8 in the pre-test to 3.5 in the post-test, indicating that whatever process students were using it had more effect on number of observations than on number of perspectives. This increase in the number of observations seems a worthy goal in itself. Its achievement could be taken to mean that the student had become aware of more items of information he possessed that were relevant to the problematic situation. It is unlikely that his general fund of knowledge had been significantly increased, but perhaps more of it has been raised to a conscious level--an implication congruent with the results obtained in the test of the first instructional objective. We might point out, however, that one function of the heuristic procedure is to aid in retrieving relevant information.

The results of Test 7 showed no increase in the inclination to continue to explore new paths in the study of a problematic situation--indicating again that the student may *not* have been using the systematic procedure to guide his exploration. However, the instructions for the second part of the two-part test asserted that most students had made relatively few observations on the preceding day, and that it would be helpful to produce more (Appendix L). This may have been believed in the pre-test, but when repeated near the end of the term, when students were more confident of their inquiry skills, it may

not have been effective. And it may be that the prediction that less time would be spent "retreading familiar ground" is unsound. Use of the nine-cell procedure is not mechanical; when a student found a promising lead suggested by a given cell, protocols done during the course indicate he pursued it. (For examples of such protocols see Appendix R.) Suggesting promising lines of inquiry and providing guidance in carrying them out are two of the most important functions of the procedure. The related prediction of less warm-up time in the second part of the test might be supported if students were told to review their work in the previous session before going on. The instructions did not require this, and students did not review since the instructions stressed greater productivity of observations. It is possible that both these predictions would be supported if the instructions were changed.

We are left with the evidence that at the end of the course students were making many more observations and taking more different viewpoints in doing so. Data on the degree to which different students use the systematic approach are needed to test the predictions as stated. Alternatively, the course could be repeated, deleting the use of the nine-cell procedure as a means of directing inquiry and simply stressing productivity of observations. It would then be possible to compare the final essays with the ones obtained in this course. It may be that human beings intuitively use the nine perspectives as a natural

mode of thinking. If this were found to be true, this part of the theory might be considered properly descriptive of human capacities, but need not be taught. It would be necessary only to facilitate conditions for such mental activity. However, it seems likely that although one *may* take one or more of the perspectives during an exploration he is not likely to take all nine. And if variety of points of view and comprehensiveness of thought are desirable, then formal instruction in the procedure also seems desirable. Further investigation is necessary before we can speak with confidence on these matters.

The fourth instructional objective was to develop the students' ability to test hypotheses arising from their inquiries. On the whole, the objective was successfully achieved, but the various components of the skill were unevenly mastered. Two related problems emerged. First, students tended to ignore aspects of the problematic data inconsistent with their hypotheses. This contrasts with the fact that they clearly improved in their ability to marshal evidence to support their chosen hypotheses. It is clear that they had learned procedures which enabled them to unearth evidence in support of conclusions they already had accepted. A problem remains of how to prevent this as a primary response pattern and to insure greater sensitivity to what is *not* explained by the hypothesis. Second, students found it difficult to withhold judgment during their inquiries.

They had a strong tendency to adopt a conclusion quite early and then seek supporting evidence, as shown by the fact that they seldom stated any alternative hypotheses--on either the pre- or post-test. They appear to have lacked what John Keats called "negative capability"--the ability to be "in uncertainties, mysteries, doubts, without any irritable reaching after fact and reason" (1947, p. 72). Keats believed that this ability to tolerate ambiguity is exceptional, and so it seems. Further work would be needed to induce students to examine their ideas more critically and to withhold judgment while inquiring. This may have less to do with the rhetorical theory, however, than with the way it was presented.

The fifth instructional objective was to develop the students' ability to induce understanding and acceptance in specified audiences of the problem, hypotheses, and reasons for believing them. The judgment of experts, other than the instructor, was that the students' writing abilities improved. The judges had no way to identify early and late essays; indeed, they did not know whether they were evaluating one essay by each of twenty-four students or two papers by twelve. This, the ultimate goal of the rhetoric course, was clearly achieved.

However, no support was found for the assumption that improvement in the grammatical and stylistic quality of sentences necessarily follows from having thought well about a problem and its solution. Some of the essays with the greatest

number of editing errors received the highest scores on acceptance and persuasiveness. One may indeed have more to say and be more understandable and persuasive--no mean achievement in itself--but skill in editing sentences appears to be only minimally affected. If both objectives (audience acceptance and well-edited prose) are to be accomplished, more than the fourteen weeks of a trimester will be required, since formal instruction in editing seems necessary. The most significant result of this test, however--and it is worth emphasizing-- is that over-all rhetorical effectiveness is less dependent on good style and good grammar than the traditional emphasis on these matters suggests.

The data from student evaluations of the teacher, the course, and their expected effects on coping with everyday problems are equivocal. Although the students' perceptions of the instructor changed in expected ways and they seemed sensitive to changes in the way the course was conducted, they did not see either of these as inducing in them a greater willingness to engage themselves with ambiguous data, despite their increased confidence in their ability to deal with problems of the sort encountered in the course.

It is possible that as the term progressed what was for them a new mode of operating became more sharply differentiated from their usual intellectual work. As engineering students, they had been taught to expect single correct answers to

problems; much of their work in engineering courses had been directed toward the mastery of algorithmic procedures designed to yield such answers. In the rhetoric course, however, the emphasis was on partly systematic, partly intuitive procedures designed to encourage the production of one or more reasonable solutions to a problem. This difference may itself have created substantial difficulties for the students. Hence they may have doubted the broad utility of the heuristic procedures. Another possibility is that, since all materials subjected to in-class inquiry were literary and since engineering students tend not to have great interest or capacity in verbal activities, they failed to appreciate the applicability of heuristic skills to data other than poems and short stories. A combination of these two explanations may account for the failure to obtain the expected result in student evaluations.

As we expected, the reliability of scoring was often a problem. This was especially true in Test 1, with the notion of "immediacy"; in Test 5, with the identification of statements with cells of the matrix; in Test 8, with the quality of the students' examination of his own hypothesis; and in Test 9, with judgments of overall acceptance and understanding. The regular use of statistical tests was extremely helpful in determining the probability that the results could have been due to chance--this had the effect of pinpointing those particular areas where reliability was a special problem. It has become

clearer to us how to increase inter-judge agreement in future tests of the rhetoric, and suggestions have been made at appropriate points in this discussion.

The course was by and large successful in attaining its objectives. But to what extent is this success attributable to the teacher, to the course design, and to the rhetoric? The instructor received very high student evaluations. Other studies at the University have shown that such evaluations can be interpreted to mean only that a teacher is perceived as an expert in his subject-matter, exhibits enthusiasm for it, and pitches his teaching approach in terms students find appropriate to their interests and level of understanding.

However, in this case, the instructor confined his activities largely to what is called for in the rhetoric text itself. For example, the rhetoric gives little attention to increasing students' awareness of problematic situations; there was little class activity directed to this end--and little change in the students. In other words, the instructor deliberately tried to teach the first seven chapters of the text, following the order and emphasis given there. It is highly probable that any teacher with a thorough mastery of this system could obtain substantially the same results. Indeed, a previous study (Odell, 1971) obtained results entirely consistent with these.

A somewhat larger proportion of the results appear to be due to the course design. The process of identifying a problem, analyzing and stating it clearly, exploring the problematic data carefully, and writing about it persuasively is

integral to the production of every good essay. This is a multi-dimensional skill which must be studied sequentially. This makes it peculiarly suited to a design based on recurring cycles, with different emphasis and detail in each cycle--the design adopted here. However, other plans which provide the students with systematic and comparable opportunities to *practice* the principles set forth in the text should also be successful. Indeed, a previous partial test of the rhetoric (Odell, 1971) was successful with a quite different course plan.

But the greatest proportion of the results is probably directly associated with the rhetorical theory itself. The various activities the students engaged in were dictated by the theory, and the results that were expected on the basis of it alone were, in the main, achieved. In places where the theory was most explicit, for example in the analysis of problematic situations and in the statement of problems, strongly positive results were obtained. Where operations were less clearly specified, as in the perception of problematic situations, expectations were not met.

Chapter 6

Work in Progress

This project is one stage in a decade-long effort to develop an effective rhetoric based on the principles of tagmemic linguistics. In the early 1960's Kenneth Pike suggested that the assumptions and analytical procedures of tagmemic linguistics could be useful in solving various problems in rhetoric and literary analysis. The suggestion was natural enough since, in Pike's words, "tagmemic theory is one attempt to integrate all [language] particles in a hierarchy unbroken from sound to sonnet" (1965, p. 284). He also suggested that "composition is but a specialized variety of the use of language and that the principles about language in general should therefore be exploitable for training in the more mechanical phases of the composition arts" (1964, p. 82). Shortly thereafter, Richard Young and Alton Becker began to develop Pike's suggestions in an article entitled "Toward a Modern Theory of Rhetoric: A Tagmemic Contribution" (Young and Becker, 1965).

During the late '60's the application of tagmemics to literary and rhetorical problems were investigated in several critical articles and research reports. (For a selected bibliography see Appendix S.) The theory was also carried

into the classroom in an effort to improve student skills in literary criticism and composition; and subsequently formal research was begun to test its effectiveness (e.g., Odell, 1970). One of the weaknesses of so many of the proposals for improving rhetorical instruction has been a lack of adequate testing; often large claims are made with little evidence to support them. The results of our classroom work were uneven but on the whole promising. A recurrent complaint, however, was that the linguistic theory had not been put in a form intelligible to the non-linguist (e.g., English, 1964); as a consequence both student and teacher spent more time trying to understand the theory than using it to solve problems. In 1970 Young, Becker and Pike published *Rhetoric: Discovery and Change*--a text for the non-linguist which adapts the linguistic theory to rhetorical purposes. It was in this context that the present research project was begun.

Development of the theory and pedagogical methods continues, as does the testing. During the fall semester, 1972, the experimental course was repeated using a plan nearly identical to the one described in this report. We changed some of the weaker paper assignments and substituted new test passages for the short stories. But most importantly we used the improved version of Test 5 (Appendix N), hoping that this would enable us to test the third instructional objective more adequately. The data collected from this course, however, have not been judged and interpreted.

In future versions of the course we intend to make still more extensive revisions in our testing procedures. It is a weakness in much educational research that inconclusive results from relatively crude measures are inadequately analyzed, for such analyses can provide the information necessary for developing more refined measures. The results of the tests we have reported are valuable in themselves, but their value is increased when they are used as a basis for further work. Several cycles of use and revision may be necessary before behaviors as complex as the ones we are studying can be measured as precisely and reliably as we would like. More adequate testing procedures for such behaviors may well be one of the most significant results of our work.

During the winter semester, 1973, the course was again offered, but with one basic change--the student was allowed free choice in the problematic data he worked on, except for that required in the pre- and post-tests. This change was in response to our recommendation on p. 51. Somewhat to our surprise the course was substantially less successful than the preceding ones; most notably there was a loss of interest in the heuristic procedures, increased absenteeism, superficial work and so on--all of which indicate loss of motivation. Since the course material was nearly identical and since the teaching this time was, if anything, more skillful, it seems reasonable to conclude that this change was the source of the student dissatisfaction. What appears to have happened was

that the problems the students chose to work on were too simple or were ones they already knew the answers to. In either case, the study of methods of systematic inquiry, the backbone of the course, was superfluous. Interviews with the students and a close study of the papers support this conclusion. Despite assurances during the semester that we were not so much interested in the reasonableness of their solutions as in the process by which they arrived at them, they played it safe. Their training throughout their academic careers emphasizes correct answers as the mark of success and the basis of rewards. Apparently they did what past experience told them would insure success and rewards by selecting problems which they had solved or could easily solve. But in so doing they unwittingly eliminated the principal source of motivation for studying the art of inquiry. By this method of varying one significant component of the course each semester, we hope to isolate what is essential to effective presentation of the rhetoric.

Professor Young has recently received two grants from the College of Engineering for refinements in the teaching materials. The first grant will support development of several demonstrations of the nine-cell discovery procedure. As we noted earlier (p. 53) the procedure needs clarification. One way of clarifying it is to provide more elaborate and precise *explanations* of the operations called for by the procedure; but another way, which seems at the moment more desirable, is

to provide *illustrations* of how they can be used in exploring various kinds of data. The second grant will support the development of several sets of ambiguous data designed to stimulate the student's perception of problems. Our hope is that such data will allow us to offer the student more varied opportunities for inquiry while retaining some control over the kinds of problems he chooses; we seek a middle way between the lack of freedom in the first course (cf. p. 51) and the extreme freedom of the most recent one.

Some aspects of the project have already been made public. Professor Young presented a paper entitled "Tagmemic Rhetoric in the Classroom" at the Michigan Linguistic Society in October, 1972, and a talk ("Improving the Ability to Analyze and State Problems") at the MLA's Seminar on Practical Rhetoric in December. Last April he presented a paper on the design of the experimental course at the Conference on College Composition and Communication ("Research in Tagmemic Invention: The Importance of Method in Course Design"). Commitments have already been made for two more papers. It is our intention that all the results of the project will eventually appear in some form. As the Bibliography in Appendix S indicates, the rhetoric has already stimulated work by several students at the University. At the moment, three graduate students in English--two of whom served as judges in the project--are working on problems suggested by this study. In the long run teaching teachers, and

teachers of teachers, appears to be more effective than scholarly publication in bringing about the changes we hope for in the discipline of rhetoric. Developing means for doing this will be a major concern in the future.

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APPENDIX A

Course Description and Administration

Richard E. Young
Dept. of Humanities
College of Engineering
University of Michigan
Fall, 1971

English 497: Course Description and
Administration

I. Course objectives

A. General objectives:

1. to increase your ability to inquire into ill-defined problems; and
2. to communicate the results to various audiences clearly and effectively.

B. Specific objectives:

1. to increase your awareness of problematic situations arising out of your own experience;
2. to increase your ability to analyze and state problematic situations and their relevant unknowns;
3. to increase your ability to explore problematic data efficiently and adequately;
4. to increase your ability to test hypotheses for adequacy; and
5. to increase your ability to induce understanding and acceptance by various audiences of the problem, hypotheses and reasons for believing them.

II. Means

- A. Texts: R.E. Young, A.L. Becker, and K.L. Pike, Rhetoric: Discovery and Change (New York: Harcourt, Brace and World, 1970). Dittoed materials will be distributed from time to time.

B. Course work

1. Course work will consist of readings, lectures, class discussions, papers (9), brief oral presentations and independent work on individual projects. A detailed syllabus of the first section of the course is attached.
2. In addition to the course work described above, you will be asked to keep a "reading log," the description for which is attached.

III. Attendance

- A. Attendance is not obligatory in the sense that it does not affect your grade. However, the course is planned so tightly that even a few absences would create serious problems.
- B. You are responsible for all assigned work whether you have attended class or not. If you are unable to attend class, please contact me as soon as possible.
- C. If you have a number of absences, you will be asked to drop the course.

IV. Papers and Speeches

- A. All papers are to be typed on good quality typing paper. Double space; type on one side only, number the pages, and clip them with a paper clip. In the upper right-hand corner of the first page type your name, course, date, and the audience for whom it is written. Title all papers. Keep a carbon copy or photostat of all papers. Proofread all papers carefully, even if someone else has done the typing--especially if someone else has done the typing. Papers will be returned to you as unacceptable if these instructions are not followed.
- B. The speeches will be short reports on various aspects, of your work. Since they are short, precision, economy, and clarity of structure and explanation are essential.
- C. Both the papers and speeches must be presented on the due-dates. Exceptions will be made only in emergencies.

V. Basis for Grades

- A. The basis for grades on individual papers and speeches is given with each assignment in the syllabus. Those which would receive below a "C" will not be accepted; instead they will be marked "unsatisfactory" and the assignment must be repeated.
- B. The basis for the course grade will be a total of the grades on the papers and speeches; thus a good grade for the course implies high quality work throughout the semester.

APPENDIX B

Course Syllabus

Humanities 497
Richard Young
University of Michigan

Syllabus -- Fall Semester, 1971

- Sept. 10
Friday
Objective: knowledge of 1) course objectives, 2) means of achieving them, and 3) administrative procedures.
Self-test: can you repeat the objectives, means, and administrative procedures?
Assignment for Monday, Sept. 13--Rhetoric, pp. 1-24.
- Sept. 13
Monday
Objective: comprehension of history of rhetoric, the modern situation, and the focus of this course.
Comprehension of the genesis of inquiry and the relation of inquiry to rhetoric.
Self-test: can you summarize the history, modern situation, focus in course, and relation of inquiry to rhetoric?
Assignment for Wednesday, Sept. 15--Read the dittoed literary work carefully enough to begin working with it in class without further reference to it.
- Sept. 15
Wednesday
Objective: comprehension that problems normally arise as one works with ambiguous or highly complex data; comprehension of the variety of such problems; comprehension of the need for control over the problem, how one acquires control, and the difficulties in doing so.
Self-test: select a short literary work or other complex or ambiguous datum. Can you list several features of it which seem problematic? Select one. Can you state it precisely enough so that when someone else paraphrases it, you agree that he understands it?
Assignment: begin work on reading log which is due Friday, Sept. 24.
- Sept. 17
Friday
Objective: comprehension of nature of and need for adequate exploration of problematic data as preparation for formulating hypotheses.
Self-test: can you paraphrase the explanation of nature and need? Can you answer the following: If you were asked to explore a physical object, what would you do in order to generalize intelligently about its structure and function? What is the mental counterpart of this activity?
Assignment for Monday, Sept. 20: Review Rhetoric, pp. 10-24, for discussion in class.
Assignment for Monday, Sept. 27, Paper I: You have been engaged in isolating, stating and exploring a problem which has arisen in your mind as you studied a literary work. Out of this exploration should come one or more

hypotheses, which, when tested, may provide a solution to the problem. On the basis of this work write an essay which states and explains the problem, the solution, and the reasons for believing it. Design the essay for a group of English teachers. If it is helpful, you might imagine that the group is composed of all the English teachers you have studied with during your college career.

Sept. 20
Monday

Objective: comprehension of nature of and need for verification.

Self-test: can you summarize the nature of and need for verification? Can you answer the following: Why isn't a statement of a generalization sufficient reason for believing it? Why aren't all generalizations equally valuable?

Assignment: continue work on reading log, due Friday, Sept. 24.

Sept. 22
Wednesday

Objective: comprehension of the ubiquity of problems and their relation to rhetoric; increased skill in stating them.

Self-test: can you isolate several problems at random in your own experience and from your readings and observations? Can you state one of them so that when someone else paraphrases it, you agree that he understands it?

Assignment for Friday, Sept. 24: reading log due. Rhetoric, pp. 80-87 and 109-117.

Sept. 24
Friday

Objective: an open, flexible attitude toward problems and speculative activity; comprehension of the relation of problems to rhetoric.

Self-test: can you answer the following: What methods does Bradbury recommend for keeping and feeding a muse? What role do problems play in our intellectual development? What role do problems play in the rhetorical process?

Assignment for Monday, Sept. 27: Paper I due.

Part 2

Sept. 27
Monday

Objective: comprehension that experiences are interpretations of sense data, i.e., that an experience is the result of a transaction between something "out there" and one's Image (i.e., belief system).

Self-test: can you isolate and explain a personal experience which illustrates the point that we always add something of ourselves to sense data?

Assignment for Wednesday, Sept. 29: Rhetoric, pp. 25-52. Paper 2 due Monday, Oct. 4 (see attached instructions).

- Sept. 29
Wednesday
- Objective: same as above, and comprehension of the nature of perceptual focus, the meaning of Maxims 1 and 2, and the significance of the above for communication.
Self-test: can you analyze in terms of the ideas presented in pp. 25-52 a disagreement you had with someone over a particular event?
Assignment for Friday, Oct. 1: formulate as precisely as possible at least two problems that have arisen in your mind from the work for the last two meetings. Read dittoed "Problems and Inquiries."
- Oct. 1
Friday
- Objective: increased clarity of comprehension of the ideas presented in the two previous meetings.
Self-test: can you now answer the questions you raised?
Assignment for Monday, Oct. 4: Rhetoric, pp. 53-68. Paper 2 will be due.
- Oct. 4
Monday
- Objective: comprehension of Maxim 3; ability to apply Maxim 3 in the analysis of discourse.
Self-test: can you state the contrastive features, range of variation and typical distributions of the Indian invitation to a feast discussed by E. Pike, Rhetoric, pp. 64-66?
Assignment for Wednesday, Oct. 6: formulate as precisely as possible at least two problems that have arisen in your mind during the work for the last meeting. Paper 3 due Monday, Oct. 11. (see attached instructions).
- Oct. 6
Wednesday
- Objective: increased clarity of comprehension of Maxim 3; increased ability to apply it.
Self-test: can you now answer the problems that you raised in connection with Maxim 3 and its application?
Assignment for Friday, Oct. 8: continue work on Paper 3. (Three members of the class will be asked to give brief demonstrations of the use of Maxim 3 in discourse analysis.)
- Oct. 8
Friday
- Objective: increased ability to apply Maxim 3 in the analysis of discourse.
Self-test: can you suggest appropriate additions to the analyses presented in class?
Assignment for Monday, Oct. 11: Rhetoric, pp. 71-80. Paper 3 will be due.

Part 3

- Oct. 11
Monday
- Objective: Comprehension of the distinctive features of the process of inquiry.
Self-test: can you find an instance of the process in your own experience?
Assignment for Wednesday, Oct. 13: Rhetoric, pp. 89-100. As a means of clarifying the concept "problematic situation," follow the instructions in Exercise 2, p. 100. Paper 4 due Monday, Oct. 18 (see attached instructions).

- Oct. 13
Wednesday
- Objective: comprehension of the origin, nature and structure of problems. Comprehension of the difficulties in stating them. Ability to state simple problems.
Self-test: can you isolate and state the problematic situation and unknown implicit in Leopold's "Thinking Like a Mountain" (Rhetoric, pp. 109-111)?
Assignment for Friday, Oct. 15: be prepared to deliver a brief, well-structured, well-rehearsed, carefully timed speech (max. time 3 minutes) which presents one problem arising from the readings assigned for Paper 4.
Audience: other members of the class. Also, bring to class for discussion any questions you have about Chapters 4 and 5.
- Oct. 15
Friday
- Objective: increased clarity of comprehension of concepts discussed in Rhetoric, Chaps. 4 and 5; increased ability to state problems arising from your own experience.
Self-test: can you revise the statement of the problem presented in your speech to make it more adequate?
Assignment for Monday, Oct. 18: Rhetoric, pp. 119-136. Paper 4 will be due.
- Oct. 18
Monday
- Objective: comprehension of the nature and value of heuristic procedures.
Self-test: suppose you lost your watch in a field. What would be an inefficient way of going about finding it? Can you devise a heuristic procedure for increasing the efficiency and effectiveness of the search?
Assignment for Wednesday: pp. 137-53 in Rhetoric as a means of further clarifying the concept of "perspectives."
- Oct. 20
Wednesday
- Objective: increased comprehension of nature and value of heuristic procedures; comprehension of nature of the tagmemic exploratory procedure.
Self-test: Can you explain what is gained from using the tagmemic procedure in exploration? Can you explain how the 9-cell chart is derived from the Maxims?
Assignment for Friday: reading logs will be due. Prepare Exercise 2, p. 137, in Rhetoric; use your rhetoric text as the "handy object" called for in the assignment. I will ask each of you to use the chart to explore the book briefly. Do not write the exercise out unless you want me to comment at greater length on your work than I can during the class period.
- Oct. 22
Friday
- Objective: increased comprehension of the nature of the tagmemic exploratory procedure; ability to use it in exploring a simple and familiar object.
Self-test: can you do Exercise 6, p. 153, in Rhetoric?
Assignment for Monday: work on Paper 5, which will be due Wednesday, October 27.

- Oct. 25
Monday
- Objective: increased comprehension of the nature of the tagmemic exploratory procedure; increased ability to use it in exploring complex data.
- Self-test: can you add to the information generated in class in response to the various questions posed by the chart?
- Assignment for Wednesday: commit the chart (Rhetoric, p. 127) to memory; continue the exploration begun in class Monday so that you can make several responses to each of the questions in the chart.
- Oct. 27
Wednesday
- Objective: same as above.
- Self-test: same as above.
- Assignment for Friday: Paper 5 will be due. Bring to the meeting in my office at least two problems you have in the use of the exploratory procedure; these should be precisely formulated and written out.
- Oct. 29
Friday
- Objective: same as above.
- Self-test: can you answer all of the problems you and others raise in the class meeting?
- Assignment for Monday: Rhetoric, Chap. 7, pp. 155-168 (up to Exercise 3). Be prepared to do Exercise 1 and 2 in class.
- Nov. 1
Monday
- Objective: comprehension of the need for verification of hypotheses; comprehension of the kinds of tests used in verifying a hypothesis.
- Self-test: can you find in your own experience a hypothesis which you discovered but which proved to be defective when tested? Can you summarize the tests discussed in Chapter 7 of Rhetoric?
- Assignment for Wednesday: be prepared to do Exercises 1 and 2 (Rhetoric, pp. 163-168) in class; do not write these out unless you want individual comments from me on your thinking.
- Nov. 3
Wednesday
- Objective: ability to use your knowledge of problems (Chapter 5, Rhetoric) and hypotheses (Chapter 7, Rhetoric) to analyze the passages in Exercises 1 and 2 (Rhetoric, pp. 163-168).
- Self-test: if your analyses did not correspond to those presented in class, can you correct or defend them?
- Assignment for Friday: be prepared to do Exercise 3 (Rhetoric, p. 168) in class; do not write it out unless you want individual comments from me on your thinking.
- Nov. 5
Friday
- Objective: ability to test hypotheses which offer explanations of human behavior.
- Self-test: if your analysis and tests of the news report in Exercise 3 do not correspond to those presented in class, can you correct or defend them?
- Assignment for Monday: Paper 6 will be due, the assignment for which is attached. Note that Exercise 4 (Rhetoric, pp. 168-69) offers an introduction to Paper 6.

Nov. 8
Monday

Objective: ability to test hypotheses about literary works.

Self-test: Can you develop a prediction on the basis of the hypothesis discussed in class? Can you find experiences in your Image consistent with it?

Assignment for Wednesday: Paper 6 will be due. Read over the assignments for Papers 7 and 8 and be prepared to ask questions about anything which is unclear.

Nov. 10
Wednesday

Objective: increased comprehension of and skill in using the heuristic procedure summarized on p. 127. (We're backtracking here a bit because some of you have produced first-rate examples of the use of the procedure and we can learn more about the procedure from studying them.)

Self-test: Can you make corrections, modifications, additions to your own protocol as a result of studying the protocols in class?

Assignment for Friday: Bring to class (in my office) a written statement of one or more problems you are having with procedures for testing hypotheses.

Nov. 12
Friday

Objective: clarification of procedures for testing hypotheses.

Self-test: can you answer the questions posed during the meeting?

Assignment for Monday, Nov. 15: Messrs. Younger, Wall and Stuck will be responsible for class discussion (see assignment for Paper 7).

Part 4

Like the preceding three parts of the course, Part 4 cycles you through the entire process of inquiry. All of the class meetings in Part 4 have the same objectives: increased comprehension of the process of inquiry, increased comprehension of heuristic procedures for increasing your control over the various stages of the process, increased skill in using these procedures, and increased skill in presenting to others what you have learned from your inquiry.

Throughout Part 4 you will be asked to take responsibility for the content and conduct of the class meetings. Turning the classes over to you is one way of emphasizing the point that I have taught well and you have learned well only if, by the end of the course, you are able to engage in inquiry effectively and communicate the results effectively independent of my help.

See the dittoed "Assignments for Papers 7 and 8" for details on each of the class meetings for Part 4. I will select a moderator to keep track of the time for each speaker and to keep the discussions focussed. Those who are not speaking on a particular day should provide the speakers with feedback on their statements.

Assignment for Monday, November 29

After thinking back over your work in this course, isolate the most significant problem you still have with the course material. Then state the problem clearly and precisely. Try to limit your statement to around four sentences; since you will be writing for me and other members of the class, you can assume that we have substantial knowledge of your subject.

Check your statement for the characteristics of adequately stated problems. (See the statements numbered 1 and 2 in "Assignment for Paper 4" for a summary of these characteristics.)

Part 5

- Dec. 6 Objective: increased awareness of problematic situations;
Monday increased skill in stating problematic situations and unknowns, increased skill in adapting problem statements to particular audiences.
 Assignment for Friday, Dec. 10: Reading logs will be due.
- Dec. 8 Objective: increased comprehension that in any given set
Wednesday of problems in a person's mind some will be regarded as more significant than others; increased skill in exploring problematic data as preparation for formulating hypotheses.
 Assignment for Friday, Dec. 10: Reading logs will be due.
- Dec. 10 Objective: increased skill in exploring problematic
Friday data as preparation for formulating hypotheses.
 Assignment for Tuesday, Dec. 21, 1:30-3:30 pm: Start work now on Paper 9.
 Assignment for Monday, Dec. 13: Read Pemberton's "Semantics and Communication."
- Dec. 13 Objective: increased comprehension of the nature of ex-
Monday periences--that they are the result of transactions between something "out there" and what one brings to it, that one always adds something of himself to the data; increased comprehension of the implications of this theory for rhetoric.
 Assignment for Tuesday, Dec. 21, 1:30-3:30 pm (final examination period). Paper 9 will be due as well your theme file, containing Papers 1-8.

APPENDIX C

Paper Assignments

Assignment for Paper 1

Assignment for Monday, September 25, Paper I. You have been engaged in isolating, stating and exploring a problem which has arisen in your mind as you studied a literary work. Out of this exploration should come one or more hypotheses, which, when tested, may provide a solution to the problem. On the basis of this work write an essay which states and explains the problem, the solution, and the reasons for believing it. Design the essay for a group of English teachers. If it is helpful, you might imagine that the group is composed of all the English teachers you have studied with during your college career.

Assignment for Paper 2

Chapter 2 of Rhetoric (pp. 25-52) provides an explanation of how different people perceive the "same thing" differently. In the story by William Carlos Williams, four people participate in a series of events, a medical examination of a young girl suspected of having diphtheria. Their statements and actions indicate, however, that they interpret the events quite differently. Using the explanation in Chapter 2 as a guide, try to account for the behavior of two or more of the people.

In responding to your papers I will be looking for the following:

1. Your command of the ideas in Chapter 2.
2. Your ability to use them as a guide in speculating about complex human behavior.
3. Your ability to state your conclusions clearly and precisely.
4. The adequacy of the evidence you offer in support of your conclusions.

The conventions of good prose (e.g., accurate spelling and punctuation; clarity of organization; and economy, clarity and appropriateness of style) are expected. These come from rewriting and careful editing.

Assume that I am the audience.

Assignment for Paper 3

Chapter 3 of Rhetoric presents and discusses the assumption that adequate understanding of a unit of experience involves knowing the significant ways in which it differs from other units, its variant forms, and its place in time sequences, space, and classification systems. Or stated as Maxim 3: a unit at any level of focus, can be adequately understood only if three aspects of the unit are known: 1) its contrastive features, 2) its range of variation, and 3) its distribution in larger contexts.

Paper 3 has two parts:

First, isolate a unit of experience in The Use of Force (e.g., a medical examination for diphtheria, the young girl, the doctor, the mother) and state its contrastive features, range of variation and distributions. The result should be comparable to the data on the "American Redstart," pp. 60-61 in Rhetoric.

Second, use the information gathered from the above exercise as the basis for a short essay describing and generalizing about the unit. Agee's essay on pp. 66-68 in Rhetoric suggests how such data can be transformed into an essay.

In responding to your work I will be looking for the following:

1. Your comprehension of the ideas in Chapter 3.
2. Your ability to use them as a guide in exploring a complex unit of experience.
3. Your ability to use the information resulting from this exploration as the basis for an essay which describes and generalizes about the unit.

The conventions of good prose (e.g., accurate spelling and punctuation; clarity of organization; and economy, clarity, and appropriateness of style) are expected. These come from rewriting and careful editing.

Assume that I am the audience. Your goal is to enable me to understand what you have learned.

Assignment for Paper 4

Chapter 5 of Rhetoric discusses the nature of problems and procedures which aid in stating them well. A problem is an interpretation; it is a creation in someone's mind, growing out of an awareness of an inconsistency between an experience and a prior belief or between two beliefs in someone's image.

Attached are three literary works which are sufficiently complex to create problems of various sorts for the perceptive reader, sensitive to his own reactions. Working with one, two or all three of the works, state and explain three problems which arose in your mind which you regard as significant and interesting.

In responding to your work I will be looking for the following:

1. Your ability to use the ideas in Chapter 5 as a guide in stating problems. This ability will be manifested in
2. the form and content of the problem statement. An adequately stated problem has the following characteristics: (1) an explicit statement of the problematic situation, in which (2) the inconsistent elements are stated as incompatibles (e.g., X but Y; X, however, Y; or X conflicts with Y); (3) an explicit statement of the unknown as a question, (4) the answer to which, if believed or acted upon, will eliminate or at least mitigate the problematic situation.
3. the success with which you adapt your statement to the audience, in this case the group of English teachers who formed the audience for Paper I.

The conventions of good prose (e.g., accurate spelling and punctuation; clarity of organization; and economy, clarity and appropriateness of style) are expected. These come from rewriting and careful editing.

Note that the passage by Karl von Frisch (Rhetoric, p. 91) can serve as a model for your statements, particularly if the last sentence of the passage is restated as a question.

Note also that CVD analysis (Chap. 3 in Rhetoric) can be of some help in both the discovery and formulation of problems. Since it provides a procedure for systematic exploration of a unit, it can be used to explore the literary works and such exploration often turns up unexpected problems. It can also be used to clarify the problem once you become aware of it, for a problem is itself a unit of experience.

Assignment for Paper 5

Chapter 6 of Rhetoric (pp. 119-153) provides a systematic procedure for exploring complex problematic data in search of a hypothesis. Select the most interesting of the problems you discussed in Paper 4; then write a "protocol" of your exploration of the problematic data guided by the nine-cell chart on p. 127 of Rhetoric. Conclude with a statement of one or more hypotheses. The dittoed student work entitled "Why I Became an Introvert" can be taken as a model, with these two exceptions: (1) your protocol is to include responses to the questions in all nine cells, and (2) you need not test your hypotheses. Begin the protocol with the statement of the problem, followed by the unit or units on which you focus your attention during the exploration.

In responding to your protocols I will be looking for the following:

1. Your command of the ideas in Chapter 6.
2. Your ability to use them as a guide in exploring complex problematic data.
3. Your ability to state the results of each phase of the exploration precisely.
4. Your ability to formulate hypotheses which answer the question posed in the initial problem.

The conventions of good prose (e.g., accurate spelling and punctuation; clarity of organization; and economy, clarity and appropriateness of style) are expected.

Audience: the group of English teachers.

Assignment for Paper 6

Chapter 7 of Rhetoric (pp. 155-169) provides a set of general tests for determining the adequacy of hypotheses. Select the most promising hypothesis developed in the preceding paper (i.e., Paper 5) and test it for adequacy. Notice that the hypothesis may pass all the tests, only some of the tests, or none of the tests. Although one would like the hypothesis to pass them all, and hence solve the problem, it is not at all uncommon for hypotheses to fail some tests or to fail them all. No matter what the results of testing, however, they are always useful, for they either verify the hypothesis or send us back, a bit more knowledgeable, for additional inquiry. If the hypothesis you have formulated does not pass the tests, you are not required by this assignment to develop another hypothesis, although you may if you get a good idea for one.

Organize your paper in the following way: begin with a statement of the problem to be solved (see Papers 4 and 5), state the hypothesis, and then state the reasons for believing it (or accepting it tentatively, or rejecting it). Your audience is, again, the hypothetical group of English teachers; hence include any explanation necessary to clarify your statements for this audience. Note that the tests provide not only reasons for your believing (or questioning or not believing) the hypothesis but reasons for their believing it as well.

In responding to your paper I will be looking for the following:

1. Your comprehension of the ideas in Chapter 7; this will be manifested in your ability to apply the tests discussed there to the hypothesis you have developed.
2. The skill with which you use the tests as guides in evaluation.
3. The reasonableness of your evaluation (i.e., whether your conclusions about the hypothesis follows from the results of the tests).
4. Your ability to use the results of the tests as evidence to support generalizations in your paper.
5. Your ability to use the tests to select the best hypothesis and argue for it, should you have discovered more than one or should the audience hold one different from yours.
6. Your ability to isolate data not explained by your hypothesis and to deal with it rationally and persuasively.

Assignments for Paper 7 and Paper 8

Chapters 1 through 7 of Rhetoric discuss (1) the nature of rhetoric as the theory and art of inducing changes in minds (your own and those of others) by verbal means, (2) the nature of experience and learning, (3) the process of inquiry, and (4) heuristic procedures for gaining greater control over key stages of this process.

Papers 7 and 8 are designed to give you (1) additional comprehension of and skill in the conduct of inquiry and (2) additional comprehension of problems of presenting what you have learned to others and skill in solving these problems. One or more of the attached poems are to serve as the objects of inquiry.

Paper 7 may be thought of as a progress report to the other members of the class. It is to be written out on ditto masters (which I will supply), copies of which will be distributed to the class on the day you are assigned to lead the class discussion. On the day you are assigned to lead the discussion you should come to class with (1) the dittoed copies of your report and (2) a brief (max. 5 minutes), precise, carefully rehearsed summary statement of where you are in your inquiry, what you have learned, any difficulties you have encountered, etc. The class will provide you with feedback.

What follows is a list of class members, the class periods you are responsible for conducting, and about how far along you should be in your inquiry.

Mon. Nov. 15	Younger, Wall Stuck	Statement of problem
Wed. Nov. 17	Strack, Stang, St. John	Statement of problem & exploration of problematic data
Fri. Nov. 19	Quell, Martinez	Statement of problem, exploration of problematic data & hypothesis
Mon. Nov. 22	Leslie, Kovacs	Statement of problem, exploration of problematic data, hypothesis & tests
Wed. Nov. 24	Graessle, Clough	Same as above

As you can see from the calendar for the remainder of the semester, it is imperative that you speak and submit your progress reports on the assigned dates.

The other members of the class in responding to your report will be looking for the same features I have looked for in previous assignments (for these features see assignments for Papers 4, 5, and 6).

Paper 8 is to be an essay which communicates the results of the completed inquiry to that by-now-familiar audience of English teachers. In responding to your essay I will be looking for

- a) the adequacy of your problem statement and explanation,
- b) the adequacy of the statement of hypothesis,
- c) the amount of support provided for the hypothesis,
- d) the ability of the hypothesis to account for all the significant data.
- e) clear and persuasive explanations of why any alternative hypotheses are less adequate,
- f) identification of data not explained by the hypothesis,
- g) organizational and stylistic adequacy,
- h) the persuasiveness and clarity of your argument.

Due Wednesday, December 1.

Humanities 497
Richard Young
University of Michigan
Assignment for Paper 9

This week you have been engaged in isolating, stating, and exploring a problem which has arisen in your mind as you studied a literary work (either "A Film" or "Subpoena"). Out of this exploration should come one or more hypotheses, which may, when tested, provide a solution to the problem. On the basis of this work, write an essay which states and explains the problem, the solution, and the reasons for believing it. Design the essay for a group of English teachers.

Due Tuesday, December 21, 1:30-3:30 p.m., 403 WE.

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APPENDIX D

Test Passages:

"Subpoena," from *The New Yorker*
(May 29, 1971), p. 33.

"A Film," from *The New Yorker*
(September 26, 1970), p. 31.

Removed due to copyright restrictions

APPENDIX E

Student Instructions for Test 1

Instructions

Problems grow out of situations that puzzle, disturb or upset people. The existence of a problem implies that there is something about the world that is strange or inexplicable, or that cannot be coped with on the basis of available knowledge and resources. Problems often lead to avoidance reactions--unwillingness to confront the problematic data, distortion of the data so that it is no longer puzzling or disturbing, alcoholism, drug abuse, a constant search for variety and diversion, etc.

Everyone has problems: individuals, small groups, nations, mankind. I find that, as chairman of the Department of Humanities, I must provide enough sections of courses for all Engineering students who wish to enroll in them or are required to enroll in them, yet I have too few teachers to man the required number of sections and no money to hire more. How I can meet student demands with a severely limited budget is a question I face daily. A small group of cancer researchers are wrestling with the strange fact that some cases of leukemia respond to drug treatment but other similar cases do not. Large numbers of aero engineers have lost their jobs and cannot find appropriate substitutes. The poor in this country need but do not receive adequate medical care. All men are adversely affected by environmental pollution. And so on.

For the next 15 minutes do the following:

- (1) list all the problems you can think of and
- (2) state whose problem it is

What is the problem?	Whose problem is it?

APPENDIX F

Scoring Instructions for Tests 1 and 2

Scoring Instructions for Tests 1 and 2

Scoring directions for expressed "immediacy of the problem for the writer."

Problems can be found everywhere in the world, if one is alert to them. Some of these problems we perceive as directly involving us as individuals; others are seen as "belonging" to someone else--"that's his problem"--meaning that the speaker/writer does not accept it as his own. It is possible, then, to conceptualize a dimension of "immediacy" with regard to the perception and identification of things or events or people in the world that give rise to lack of understanding, or puzzlement or bewilderment.

This dimension of immediacy has two components: the psychological distance between the speaker/writer and the person who "has" the problem, and the temporal distance between the speaker/writer and the sense of puzzlement or lack of understanding. By combining these two components, we can arrive at "levels of immediacy." Level 1 would consist of those felt difficulties, problematic situations or unknowns which are expressed in the first person, and in the present tense:

I am confused by the story (first person, present tense, felt difficulty)

We are staunch Wallace supporters, but we live in a racially integrated neighborhood (first person, present tense, problematic situation)

We can't understand the reasons for his action (first person, present tense, unknown)

Level 2 consists of those felt difficulties, problematic situations, or unknowns expressed in the first person, but in either past or future tense, or indeterminate time.

I was bewildered by the "explanation" (first person, past tense, felt difficulty)

We will vote for Wallace, but we disagree with much of what he stands for (first person, future tense, problematic situation)

I didn't understand why he came so early (first person, past tense, unknown)

I sometimes wonder about his intentions (first person, indeterminate time, felt difficulty)

Level 3 immediacy is signalled in terms of "someone else-now". That is, the difficulty, problematic situation or unknown is

attributed to some other specified individual or relatively small group, in the present tense.

He is clearly dumbfounded by the turn of events (third person, present tense, felt difficulty)
Charles is continuing his mission, although he is beginning to have second thoughts about its wisdom (another person, present tense, problematic situation)
The president doesn't know what the Russians will do (another person, present tense, unknown)
Despite the lecture, the class is still floundering (a group, present tense, felt difficulty)

Level 4 immediacy is expressed in terms of someone-else--some other (or indeterminate) time.

The reader couldn't tell what was going on (third person, past tense, felt difficulty)
The team always plays well, despite the fact that no clear leader has emerged (a group, indeterminate time, problematic situation)
The defense will continue to flounder until the "mystery witness" shows up (a group, future tense, unknown)
The singer and his accompanist finally arrived. They were as confused as everybody else (a group--in this case, a pair--past tense, felt difficulty)

Level 5 immediacy involves a more impersonal referent--like a large group such as a nation, an army, or generic terms like "voters" or "hippies" or "musicians", or a fictional character like Orestes or Zeus, or the impersonal "one". At this level time is no longer considered a significant factor.

The regiment was thrown into a state of confusion by the contradictory orders (large group, felt difficulty)
Football fans root for the underdog, but bet on the favorite (generic group, problematic situation)
One soon begins to wonder what the truth of the matter is (unspecified other, unknown)

Level 6 immediacy involves a construction in which the logical subject is inanimate or abstract. Again, time is not considered.

The story is confusing (abstract, felt difficulty--by the speaker/writer)
Slavery was an inhuman institution, but it must be admitted that it made great contributions to the development of this nation (abstract, problematic situation)
Why should it be necessary for an article to be so incomprehensible? (abstract, unknown)

APPENDIX G

Student Instructions for Test 2

The Reading Log:
Explanation and Sample Illustrations of Entries

The reading log should contain your personal reactions to the readings assigned in this course. In addition you are encouraged to include your reactions to optional readings done for this course and to readings done for other courses and on your own.

The log should serve as a record of your various reactions; it should also serve as a means for encouraging such reactions and for increasing your sensitivity to them and to the texts which elicit them. Summaries and paraphrases of the readings should not be included unless they are necessary for clarifying more unique reactions.

Attached are some illustrations of personal reactions to readings I did as a graduate student. They are intended to clarify further what is meant by "personal reaction."

Your entries on the works need not be formal essays; but they should be clearly organized and explained and carefully proofread. The length will vary depending on your reaction and how much explanation is necessary to be clear. Write or type on separate sheets and bind them securely in a plastic or manila folder. Do not use a spiral notebook. The log will be called for three times during the course of the semester. Hence it is important to keep it up to date by recording your reactions when you do the reading.

The Wooing of Etain, in Ancient Irish Tales, T.P. Cross and C. H. Slover trans. (New York, 1936), 82-92.

We always feel at sea when meeting for the first time literature from an alien culture. And to understand it better, to establish our intellectual bearings, we compare the new with the old and familiar. It's curious in reading "The Wooing of Etain"--and most of the other tales in this book--the number of vaguely familiar characters and situations we meet. For instance, the easy intercourse between the supernatural world and the natural world recalls to our minds the "humanized" dieties of The Iliad, The Odyssey and Ovid's Metamorphoses. Even Eochaid's recovery of Etain from fairy world has something of Orpheus' recovery of Eurydice in it. The fact that the two stories* could be effectively blended in the 14th century English poem "Sir Orpheo" indicates the inherent similarity. And the metamorphosis of Etain and Mide into swans recalls a host of classical shape changers.

The similarities between this new literature and familiar classical tales make the reader's response richer, even if he knows little of Irish culture. To a great extent beauty is in the eye of the beholder. The richer his own mind the more satisfying these new tales will be.

Usually stories full of fairy kings and "little people" have very little appeal for me. But it is different with these stories, for the world of these tales is the world of men and women, not of bloodless princesses, desireless princes and completely evil witches. Even though the "little people" move freely through these tales, they move in the real world and enter into the conflicts of real men and women. Unlike the over-simple fairyworld of Disney, filled with emasculated dwarfs, envious witches and fairey queens clothed in minted gold, and where the good lovers, who never really impress us by their goodness, oppose witches, whose evil never impresses us either because it never has any permanent effect on anyone, unlike all this the fairies of the Irish tales appear in a harsh world where happiness and peace are at best things of brief duration.

*At least a tale similar to "The Wooing of Etain".

This is not a child's tale--the atmosphere is charged with passion: with desire and fear, love and hate. Whatever the "unreal" elements are and for whatever reason they are there, we can still respond to the basic conflicts because we find them in ourselves.

Oisín in the Land of Youth, in Ancient Irish Tales, op. cit., 439-456.

Perhaps the reason I was less impressed with this story than with the others is that here we are more concerned with the Land of Youth than we are with the land of men and women. A land where

No pleasure e'er that entered mind

But here thou'lt find without allay.

is too far from our own world to interest us much. If this perfect world had been a mystic's attempt to express a visionary experience, as in "The Pearl," we could have found it interesting. Or if it had allegorical implications as in The Bower of Bliss, if Oisín's wife had been la belle dame sans merci, it could have been even more so. Literature must deal intimately with significant human experiences. Otherwise why make it the object of serious study? Only once can we really respond to the story, and that is when, at the end, we see an old man, Tithonus-like, yearning for youth, for a wife and children who are forever dead to him.

The Exile of the Sons of Usnach, in Ancient Irish Tales, op. cit., 239-247.

The editor calls Deirdre an Irish Helen, and in many respects the comparison is sound. Yet the tale is, in two rather striking ways, more like an Old Testament story than The Iliad. In the first place, the tale lacks the scope of The Iliad; we are not concerned here with a conflict of nations, but rather with a conflict of individuals. Even in the scenes very like those of The Iliad, for instance where Illann slays three hundred Ulstermen, we are always aware that the important conflicts still remain in the hearts of Conchobar, Deirdre and Naisi. The tale is, then, more similar to that of David and Bathsheba or Romeo and Juliet than that of Paris and Helen.

And in the second place the main characters are more Old Testament than Homeric. The Hebrews had a way of seeing their great men and women as they were

and revering them in spite of it; their portraits have a rough honesty about them. Conchobar is presented as a great king both here and in other tales, even though he is not always admirable. It was Yeats who made him the incarnation of evil desire. And Deirdre's noble love grows from a rather doubtful beginning. Among the Irish Cuchulain is most like the great Homeric heroes. He, like Achilles, establishes an ideal. But the Hebrews, and I think the Irish for the most part, were not so much concerned with ideal men as they were with magnificent but actual men. We are confronted in the Deirdre story with human beings; we see their greatness but also their limitations.

Death Tales of the Ulster Heroes, in Ancient Irish Tales,
op. cit., 333-346.

On the whole these tales are more interesting if we read them as parts of the biographies of these important men than if we read them as artistic narratives. Cuchulain's tale undoubtedly was more moving for the Irish warrior than it can be for us, for our values are different. I was struck by the contrast between Cuchulain's death and that of Roland. For me Roland's death is far more beautiful. The warrior's ideal of dying on his feet is almost a matter of vanity when compared with Roland's last pledge to God.

There is a curious incongruity between the paganism of Cuchulain's death and the Christianity of his return. One can't help but feel that the latter is an addition by a Christian copyist. And how could the cleric have more shrewdly presented his moral? The tales of Cuchulain's exploits were no doubt very popular; hence, by a simple addition the Christian writer could reach a large audience. Also, the question would naturally arise in the mind of the reader, "if Cuchulain was magnificent, how much more magnificent must He be whose coming Cuchulain foretells?"

Conchobar's death contrasts with Cuchulain's, for it is strikingly Christian. It is also interesting for the perspective it provides on Conchobar's character. This I have mentioned earlier in my comments on the Deirdre story. Obviously the early Irish saw a complexity in the human character that we tend to ignore today with our "good guy--bad guy" ethic.

The Saga of Harald the Fairhaired, in Heimskringla: The Norse King Sagas, Snorro Sturluson, trans. by Samuel Laing, III, (London, 1844).

Too often the modern historian is content to present isolated facts. They stand before us, real but inexplicable. We are told for example, of the colonization of Iceland in the ninth century; but the complex struggle for power and the loves and hates which explain this colonization are never given us. The Saga of Harald Haarfager gives the bare fact more meaning; it makes the fact an important result rather than an isolated incident. As history it is excellent.

Emerson's view of history as the lengthening shadows of great men is no longer very popular, but Snorro Sturluson would never have questioned the idea. This belief results in a good many excellent character studies. For example, "Eric was a stout handsome man, strong, and very manly--a great and fortunate man of war; but bad-minded, gruff, unfriendly, and silent."

There is a powerful irony in the story of Harald and his efforts to unify Norway. He is driven to the task by his love of Gyda and proceeds wisely. But his sensuality results in so many heirs that his work is undone within his lifetime. He destroyed an older, workable social structure and failed to replace it with anything more stable and more workable. It is curious, perhaps even tragic, that a man who began so well should leave the realm in chaos. The sagas would have been good source material for a Scandinavian Shakespeare.

The Saga of Grettir The Strong, G. A. Hight trans., Everyman's Library, (London, 1914).

Great literature is always more difficult to talk about than poor literature, for great literature has a richness and complexity that eludes simple analysis. For this reason, any brief statement on The Grettissaga is likely to be unsatisfying. In spite of this I would like to comment on three aspects of the story: the structure, the world view, and the use of irony.

The historical function of this saga is eclipsed by the biographical one, and the biography is great tragedy. The basic pattern of tragedy is the pattern of this saga: we see the rise, decline and eventual destruction of an individual. Handling this arc-like pattern with great skill, the author begins with a character sketch of Grettir and a series of, in themselves, relatively trivial incidents but which foreshadow his eventual doom. After his being outlawed we see his gradual loss

of control of his destiny. His friends gradually die off, and more and more people begin hunting him. The possibilities for living narrow until he is forced to take up life on an impregnable island. Finally, with the aid of witch-craft, his enemies brutally murder him. Although the tale is long and complex, nothing is superfluous; everything contributes to the focusing of the action on a single room where a man dies, defending himself magnificently.

"Everything is full of hardship in the kingdom of earth; the decree of fate changes the world under the heavens. Here possessions are transient, here friends are transient, here man is transient, here woman is transient; all this firm-set earth becomes empty." So spoke the Wanderer. The people of Grettir's world might have said the same, for their world was an unpredictable, as gloomy, and as empty. The tough stoicism that pervades the saga is almost the inevitable philosophy in this world. It is the only possibility for Grettir. For by his very nature he is doomed to an unhappy life. I was reminded of Hebbel's theory that all exceptional people, whether they are beautiful or powerful or virtuous, are potentially tragic. Grettir with his enormous strength and candor could hardly hope to escape injury.

In a world controlled by fate, a world unpredictable and ultimately inexplicable, the sense of irony is apt to be sharpened. Man's expectations are often frustrated and the incongruity of his desires and the way they are fulfilled becomes apparent. An Asser or a Bede might have seen no incongruity: one reaps what he sows. But the Icelandic at that time was bolstered by no such philosophy. Perhaps this hypothesis explains the many ironies of the tale. For instance, Grettir is killed when he has but one more year before he regains his freedom; he has the strongest arm in Iceland, yet his spindly-armed brother revenges him; and Thorbjorn is killed by Grettir's sword at the very moment he is boasting of taking it.

In The Grettissaga we have a profound and artistic treatment of a magnificent theme.

The Ruin, in Anglo-Saxon Poetry, R.K. Gordon trans., Everyman's Library (London, 1950), pp. 92-93.

Actually all that is being said in "The Ruin" is that a great city has decayed, the fate of everything in this world. The impact of the poem comes, not from the central idea which was a common one in that time, but from the way this idea is developed. The piling

up of highly concrete descriptions of the ruins make them real for us:

Often this wall, grey with lichen and stained with red... The wood-work of the roof is stripped of tiles... Despoiled are the towers with their gates; frost is on their cement....

When the city as it originally was is also described in detail, we realize more profoundly what has taken place. We are not merely told about the change, we are shown the corpse of a city as well as the city in all its youth. The author has made the decay both real and important for us by his craftsmanship.

The Wife's Lament, Ibid., pp. 87-88

"I make this song of my deep sadness, of my own lot." The Wife's Lament represents perhaps the simplest literary form there is. It is merely a verbalization of a welling-up of emotion. But it is literature and not the incoherent ravings of a revengeful woman. Even though she is more conscious of the emotion than of herself feeling the emotion the work still has form--although a very simple one. Her own sufferings make her cry out; then she broods over her lot and that of her husband. Indignation results from this brooding and she curses her persecutor. The movement of the work follows, I think, a natural train of thought--from lament to indignation to curse.

Christ, Ibid., pp. 147-181.

For me "Christ" is a dull work. It is repetitious and unimaginative. Part Three, for example, is a series of variations on the theme that the good shall know joy and the bad, misery. The author practices no economy of statement; he uses highly emotional words to say the same thing many times. The words soon lose their vitality and the ideas soon cloy. It does not follow that if a little is good, more is better. Also, the writer's descriptions of joy and torment are unoriginal. One might object that what is a cliché for us was original for them. But I find it hard to believe that, even this early, describing joy in terms of light and jewels and torment in terms of fire, ice and worms was new. They are "doctrinal clichés" now and probably were then also. Only occasionally does the description come to life. For example: "Then

about my head they twined a sharp crown of pain, cruelly pressed it on." Here I can respond. The verbs are specific; they have almost a tactile appeal. But on the whole the work is wordy and commonplace. I missed the terseness of Scandinavian prose.

Selection From The Blickling Homilies, "The Signs of the Last Judgment," in Select Translations From Old English Prose, pp. 200-203.

This is shocking. The impersonal enumeration of events lends a validity to the statements: these are not the author's opinions, the tone suggests; rather, this is the way it will be. The incongruity between tone and subject matter seems to increase the horror; perhaps because we have no one else's response to compare our own with--the imagination has free play.

The brief but vivid descriptions also help to create a shocking effect: bloody rain falling in the evening, for instance, and darkness at noon. And if we understand it metaphorically, the coming of devils to try men's souls could be an allusion to the inhumanities committed out of insane fear--a horrible finale to six terror-filled days.

The biblical quotations, which are fearful in a way no other literature is fearful, are used with great effect. They both lend their authority to the prophecy and their terror to the effect. Of this day of doom one might well say, "Blessed are those that are barren, and blessed are the wombs that have never brought forth, and the breasts which have never given suck."

This was a terrible religion; I understand better now why the people then feared and anticipated doom in 1000.

Henry Adams, Mont-Saint-Michel and Chartres, (New York, 1933), pp. 1-31.

In Mont-Saint-Michel and Chartres we meet a sensitive, imaginative, well-informed critic--a critic who understands the medieval world, not one who merely knows about it. Out of the descriptions of men and arches, jongleurs and poetry emerges the sense of a real world filled with real people. By the time we are told of William and his men-at-arms crossing on

the sands beneath Mont-Saint-Michel we have begun to visualize the scene and understand the men.

With the help of Wace, Mr. Adams creates a memorable character in Taillefer. If the real Taillefer was only half as great as Adams' hero, who enobles himself through bravery, who, like a drum-major, throws his sword into the air, all the while chanting his battle song, he was worth the patent of nobility William granted in the field.

And yet neither the people nor the places are sentimentalized. They never become concrete extensions of emotional predispositions. William is a great man and is respected by Mr. Adams. But William never is made something he wasn't: he is hard, practical, an opportunist as well as a great administrator, a great soldier and a good judge of men. If we compare the popular ideas of today about Alfred and Boethius with this portrait of William, we see the difference between sentimentality and sensitivity.

And the church itself is treated more symbolically than it is sentimentally. In it are compressed the characteristics of the age as well as of the distinctive Norman character. The arch is related to the literature of the period and, in turn, they are both placed in the larger context of Norman and French culture. The criticism of Mr. Adams is essentially synthetic, not analytic. He tries to see the world whole.

After reading this selection we feel that we can better understand, if not feel, medieval literature and the medieval world. He helps us to read more imaginatively, more sensitively, and more intelligently.

APPENDIX H

Student Instructions for Tests 3 and 4

Instructions for class work

- A. You have read carefully the short story you were given last hour. For the next 20 minutes list the problems that arise in your mind as you think about the story. Number each problem as you go along.
- B. Select from your list one problem that strikes you as interesting and/or important (that is, worth investigating further) and write one concise paragraph stating the problem so that a hypothetical group of English teachers can understand it. You have 20 minutes to do this.

APPENDIX I

Scoring Instructions for Test 3

Instructions for Test 3

You will be given a list of numbered items. Each item is composed of one or more statements. Your tasks are (1) to isolate the statement(s) in each item, and (2) to classify each statement as (a) a *felt difficulty*, or (b) a *problematic situation*, or (c) an *unknown*, or (d) a *hypothesis*, or (e) an *other*.

The terms *felt difficulty*, *problematic situation*, etc. are taken from a description of the process of inquiry, that psychological process which begins when one senses, or "feels," a difficulty which seems significant enough to warrant investigation. The process of inquiry can be analyzed into the following stages and sub-stages:

PREPARATION

Felt difficulty

Statement of the difficulty as a *problematic situation*

Statement of the *unknown*, i.e., what must be discovered in order to eliminate the problematic situation

Exploration of the problematic data

INCUBATION

A period of unconscious activity

INSPIRATION

Discovery of a *hypothesis*, i.e., a tentative answer to the *unknown*

VERIFICATION

Formal testing of the hypothesis

As stated above, your tasks are to isolate the statements in the numbered items and then to determine whether or not they indicate involvement in the process of inquiry. Or, more specifically, whether each statement is an instance of a *felt difficulty*, *problematic situation*, *unknown*, or *hypothesis*. Some statements may not be any of these. For example, a statement like "This is a short story," standing by itself, does not suggest involvement in the process of inquiry. Such a statement should be classified as "other."

Detailed instructions for classifying the statements are attached. But some general observations and instructions can be given here:

1. Note that a numbered item may be composed of more than one statement; for example, a single item might contain a problematic situation and an unknown, in which case, you should record two statements.
2. Note that a single statement may be made up of one or more clauses or one or more sentences.

3. On the sheet of items, bracket [] each statement that you isolate, i.e., each *felt difficulty*, *unknown*, *hypothesis*, etc. Then number the bracketed statements consecutively; place the number above the statement.
4. Next to the number above the bracketed statement, place the capital letter corresponding to the most reasonable classification of the statement.
5. Note that some statements will be difficult to classify with certainty; they might reasonably be put in more than one class. In such cases, indicate the next most reasonable classification in parentheses () after the most reasonable one.
6. When you have finished the task, nothing should remain unbracketed.

Thus after you have followed the instructions, a single item might look like this:

1. [The "monster" is made of metal and odds and ends from the corner drugstore, yet he talks, reads, carries out the garbage, and is regarded by the narrator as a companion and friend.] [it's not clear to me whether he is really a robot.]

Study the attached instructions carefully. When you have done this, you will be given a sample task, a dry run which will give you an opportunity to raise any remaining questions you might have.

Additional Rules for Scoring

1. Don't refer to other items in order to resolve ambiguities in the item under attention.
2. If a relative pronoun in an independent clause refers to an entire previous independent clause (as in 876,3), treat the two as a single statement.
3. Dependent, or subordinate, clauses are not to be treated as separate statements.
4. Independent clauses, even if they are subordinate in meaning, are to be treated as separate statements unless they are elaborations of some sort (i.e., restatements, illustrations, etc.)
5. If two questions can take different answers (as in 876,4b,4c), treat them as different statements.

TYPE A STATEMENTS

Felt Difficulties

A *felt difficulty*, as we will use the term, refers to a statement of one or more clauses which indicate confusion, puzzlement, bewilderment about the short story. The focus is on one's response to the story or some feature of it; and this response can be characterized as a feeling of uneasiness, confusion, or difficulty arising out of one's interaction with the text. *Felt difficulties* mark the earliest stage of the process of inquiry.

By way of contrast, Type B statements (Problematic Situations) are an attempt to state explicitly what caused the feeling of uneasiness; such statements present observations about the story that are inconsistent with other observations or with prior beliefs or experiences, i.e., they are explicit statements of cognitive dissonance.

Felt difficulties can be contrasted with another kind of statement which focuses not on one's response to the text but on some feature of the text which is seen as being in some way defective. Such statements are likely to be Type E Statements.

Examples of Type A Statements:

1. I am more bewildered than pleased or amused by this story, although I look upon reading it as an interesting mental exercise. (The first clause suggests that the unit should be classified as Type A.)
2. I'm confused; the passage makes no sense at all. (The first clause suggests a Type A classification. When linked with the first clause, the second appears to be a restatement. If the second clause were standing by itself, however, it should be considered a Type E Statement.)

Negative examples for contrast:

1. The "monster" is made of metal and odds and ends from the corner drug store, yet he talks, reads, carries out the garbage, and is regarded by the narrator as a companion and friend. (Type B)
2. The passage is confused. (Type E, it's the passage rather than the reader that's confused.)
3. This is a lousy story. (Type E)
4. The story lacks coherence. (Type E)

Clauses and sentences which serve as introductions, restatements, explanations or illustrations should be considered elaborations of the statement and should not be counted as separate statements.

TYPE B STATEMENTS
Problematic Situations

A *problematic situation*, as we will use the term, refers to a statement of two or more clauses which explicitly describes a dissonance (i.e., an anomaly, inconsistency, incompatability, discrepancy, or puzzling contrast). The clauses or sentences are characteristically linked by words like: yet, however, nevertheless, but, on the other hand, although. A *problematic situation* is made up of an observation about the story followed by a second observation (or prior belief or experience) which seems to be incompatible with it, i.e., a *problematic situation* is an explicit statement of a cognitive dissonance. Such a dissonance encourages one to further inquiries, usually to an effort to state an unknown.

Examples of Type B Statements:

1. The "monster" is made of metal and odds and ends from the corner drug store, yet he talks, reads, carries out the garbage, and is regarded by the narrator as a companion and friend.
2. I've always thought of vandals as barbaric, destructive people, but the vandals described in this story live in mobile homes and plant trees as community projects.

Negative examples for contrast:

1. The author may think he's written something that makes sense, but he sure as hell hasn't. (Type E. Although it has the grammatical form of a problematic situation, it does not encourage further inquiry. There is no inconsistency, or dissonance, in the reader's mind.)
2. I am more bewildered than pleased or amused by this story, although I look upon reading it as an interesting mental exercise. (Type A. Although it has the grammatical form of a problematic situation, the two clauses do not present an inconsistency, and the first clause suggests the feeling of confusion characteristic of Type A Statements.)

Clauses and sentences which serve as introductions, restatements, explanations or illustrations should be considered elaborations of the statement and should not be counted as separate statements. However, questions following the problematic situation and deriving from it should be considered either Type C or Type D Statements. Sentences preceding or following the problematic situation which indicate confusion, puzzlement, etc., should be considered Type A Statements.

TYPE C STATEMENTS

Unknowns

An *unknown*, as we will use the term, refers to a statement of one or more clauses which indicates information that one lacks. It is usually in the form of a question, though not always. The question will begin with a "question word": who, what, when, where, how, why. When the *unknown* takes the form of a declarative sentence, it contains one of these question words and can readily be rephrased as a question. *Unknowns* require extended answers--identifications, explanations, etc.

By way of contrast, questions beginning with auxiliary verbs (can, shall, will, may, must, could, should, would, might, ought, or some form of is, do, have) take "yes" or "no" answers; such questions should be considered Type D Statements. Type D Statements can also be phrased as declarative sentences, often containing a clause beginning with "if" or "whether"; such sentences can be rephrased as "yes-or-no" questions.

Examples of Type C Statements:

1. Why does he ...?
2. I don't understand why he ...
3. What is the significance of the searchlight at the end of the story?

Negative examples for contrast:

1. Is he a robot? (Type D)
2. I wonder if he is a robot. (Type D)
3. I wonder whether he is a robot. (Type D)
4. Is the searchlight a comic equivalent of the light of truth? (Type D)
5. I am puzzled by the detail of the searchlight at the end of the story. (Type A, since the writer focuses on his confusion and has not yet formulated the kind of information he needs.)

Clauses and sentences which serve as introductions, restatements, explanations or illustrations should be considered elaborations of the unit and should not be counted as separate statements.

TYPE D STATEMENTS

Hypotheses

A *hypothesis*, as we will use the term, refers to a statement of one or more clauses which suggests an answer to a prior, usually unstated, unknown. Although conventionally *hypotheses* are phrased as declarative sentences, they may also be phrased as questions. Phrased as questions, *hypotheses* begin with auxiliary verbs (can, shall, will, may, must, could, should, would, might, ought or some form of is, do, have). Phrased as declarative sentences, they often contain clauses beginning with "if" or "whether." "Hypothetical" questions can be rephrased readily as "if" or "whether" sentences and vice versa. Whatever their grammatical form, *hypotheses* are tentative answers to prior unknowns. It is the tentativeness of the answer that produces the question form or the use of words like "if" and "whether"; it is also their tentativeness that produces the characteristic need for verification for a yes-or-no, true-or-false evaluation.

Examples of Type D Statements

1. Is he a robot?
2. I wonder if he is a robot.
3. I wonder whether he is a robot.
4. Is the searchlight a comic equivalent of the light of truth?
5. I suggest that, despite his behavior, he is a robot.
6. He could be a sort of "missing link"--half man and half robot.

Negative examples for contrast:

1. Why does he ..." (Type C)
2. I don't understand why he ... (Type C)
3. What is the significance of ..." (Type C)
4. This is a lousy story. (If there is no elaboration to indicate that the statement is a suggested answer to a prior unknown, treat it as a Type E Statement.)

Count alternatives or opposites as separate statements, e.g., Is he a man or [is he] a robot? That is, this compound question should be counted as two statements.

Clauses and sentences which serve as introductions, restatements, explanations or illustrations should be considered elaborations of the statement and should not be counted as separate statements.

TYPE E STATEMENTS

All Other Kinds of Statements

This class includes statements of one or more clauses which are not felt difficulties, problematic situations, unknowns, or hypotheses, or their elaborations. It is easier to be precise about what this class of statements does not include than about what it does. But *Type E Statements* do share certain general characteristics. They are all statements which suggest that the person is not engaged in the process of inquiry. The first four types of statements suggest involvement at some stage in the process of inquiry; *Type E Statements* suggest that inquiry has stopped or has never begun. The first four types indicate an attitude exemplified by such statements as: "I'm not sure" or "Let me think about it" or "That's strange." *Type E Statements* suggest an attitude exemplified by: "Let's have no nonsense" or "It's as plain as the nose on your face" or "It's perfectly clear" or "Who cares?" Rather than focusing on the reader's involvement with the text, *Type E Statements* focus on the text itself, or evaluations of it, or the intention of the author, as if these existed independent of the reader.

Examples of Type E Statements:

1. The passage is confused.
2. This is a lousy story.
3. The story lacks coherence.
4. The author may think he's written something that makes sense, but he sure as hell hasn't.
5. The story is senseless.

Negative examples for contrast.

1. This is a confusing passage. (Type A, because "confusing" suggests the reader's response. By contrast, to say that "the passage is confused" suggests that the reader is in no doubt about it, that the passage is simply defective. That is, the confusion is in the passage rather than in the reader's mind.)
2. I can't make any sense out of this story. (Type A, because it suggests the reader's lack of understanding. By contrast, to say that "the story is senseless" suggests that the reader has no doubt about it; the story to his mind is clearly defective.)

Clauses and sentences which serve as introductions, restatements, explanations or illustrations should be considered elaborations of the statement and should not be counted as separate statements.

APPENDIX J

Scoring Instructions for Test 4

INSTRUCTIONS FOR TEST 4

You will be given a series of paragraphs to analyze. Attached to each paragraph is a form on which you are to record the results of your analysis. Each of the paragraphs is an effort to state a problem which arose in the writer's mind as he read a short story, and to state it in such a way that it will be understandable to you, the reader.

In the analysis of each paragraph you are asked to do the following:

- A. Determine whether a *problematic situation* is stated in the paragraph and whether the *problematic situation* is accurately stated. Determine whether an *unknown* is stated and whether it is clearly related to the *problematic situation*.
- B. Determine the degree to which the paragraph is, to your mind, understandable.

Problematic situations arise in someone's mind when he becomes aware of clashes or inconsistencies in his experience: inconsistencies between what he is perceiving and what he believes (knows, values); or between two already held beliefs. Suppose someone believes that atomic power plants are the only means of meeting our growing need for electrical power and then reads an authoritative report on the serious damage such plants do to the environment. What he has read clashes with what he believes; they don't "fit" together. If he were to state the problematic situation, he might say something like

Atomic power plants are the only means of meeting our growing power needs; however, they do serious damage to the environment. [Either or both of the clashing elements might be elaborated on.]

The presence of a problematic situation (at least one which is considered important and worth careful thought) leads to the formulation of an unknown--that is, what needs to be discovered in order to eliminate the problematic situation. The unknown for the problematic situation above might be stated something like this:

How can the damage to the environment be eliminated or at least brought within acceptable limits?

A problematic situation plus the relevant unknown is what we will call a *problem*.

An adequately stated problem has the following characteristics: (1) an explicit statement of the problematic situation, (2) in which the inconsistent elements are stated as incompatibles (e.g., X but Y; X, however Y; X conflicts with Y); (3) an explicit statement of the unknown, usually as a question, (4) the answer to which will eliminate or at least mitigate the problematic situation. Elaborations of any part of the problem statement may be included for clarification.

As an illustration of the task you are being asked to perform, consider the following:

Sample Problem

Donald Justice's "Counting the Mad" is a puzzling poem. It is obviously similar in form to the toe-pulling nursery rhyme "This Little Piggy Went to Market." Yet there is no apparent reason for the structural parallel. The poem and nursery rhyme differ greatly in content, audience, and meaning. Why is the rhyme echoed in "Counting the Mad"?

Sample Analysis

N.B. Bracketed statements below are for clarification. You are not asked to supply similar statements when you fill out the forms. You are asked only to fill in the blanks on the forms.

A. Read the attached statement carefully and then answer the following with a "yes" or a "no";

1. Is a *problematic situation* explicitly stated?
Yes

[It is obviously similar in form....Yet there is no apparent reason....]

Are the two components of the *problematic situation* clearly incompatible, or dissonant? Yes

[We expect such an obvious feature to be functional, yet it is not clearly so: function/no apparent function.]

2. Is an *unknown* stated? Yes

[Why is the rhyme echoed in "Counting the Mad"?]

Is the *unknown* relevant to the *problematic situation*, i.e., if the *unknown* is answered, is it likely, *possibly* believed or acted upon, to eliminate or at least mitigate the *problematic situation*?

Yes

[The question is phrased in such a way that the answer is a statement about the function of the echo.]

N.B. At times as you fill out the forms you may have difficulty deciding whether you should answer yes or no. In such cases, make a note at the bottom of the form explaining why.

- B. Assume that you are the reader for whom the statement was written. Indicate on the following scale, by circling a number, the degree to which you understand the problem the writer has tried to explain:

I do not
understand
his problem

I understand
his problem
fully

1 2 3 4 5 6 7 8 9 (10)

[The problem is fully understandable to me since it is carefully stated and I am familiar with the poem. The writer could have insured that others would understand if he had included the first stanza of the poem which clearly reveals the structural similarity. Someone who had not read the poem might have circled a 6 or 7 or 8.]

Study the "Instructions" carefully. When you have done this, you will be given a sample task, a dry run which will give you an opportunity to raise any remaining questions you might have.

Test 4

Your name _____

(Analysis of Problem Statements)

Date _____

Number at right hand top
of attached sheet _____

A. Read the attached statement carefully and then answer the following with a "yes" or a "no" -

1. Is a *problematic situation* explicitly stated? _____

Are the two components of the *problematic situation* clearly incompatible, or dissonant? _____

2. Is an *unknown* stated? _____

Is the *unknown* relevant to the *problematic situation*, i.e., if the *unknown* is answered, is it likely, when believed or acted upon, to eliminate or at least mitigate the *problematic situation*? _____

B. Assume that you are the reader for whom the statement was written. Indicate on the following scale, by circling a number, the degree to which you understand the problem the writer has tried to explain:

I do not
understand
his problem

I understand
his problem
fully

1 2 3 4 5 6 7 8 9 10

APPENDIX K

Summary of Nine-Cell Heuristic Procedure

(From Richard E. Young, Alton L. Becker, and Kenneth L. Pike, Rhetoric: Discovery and Change, New York: Harcourt, Brace and World, 1970, p. 127.)

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APPENDIX L

Student Instructions for Tests 5, 6 and 7

Instructions for class work

- A. Carefully examine the list of problems you made last hour. Then in the margin renumber the list so that the problem which seems to you most important is numbered 1; the next most important is numbered 2; the third most important 3; etc. 5 minutes.
- B. Consider the short story again in terms of the problem you explained in the paragraph you wrote last hour. List the ideas that come to mind as you explore the story (i.e., observations about the story, not possible answers to the problem). Number each observation. 20 minutes

Hand in the folder, the instructions and the list of observations before leaving.

Instructions for class work

Last period you were given the following task:

Consider the short story again in terms of the problem you explained in the paragraph you wrote last hour. List the ideas that come to mind as you think back over the story (i.e., observations about the story, not possible answers to the problem). Number each observation.

The usefulness of such an exploration of the problematic data depends heavily on your making a large number of observations.

However, most of you made relatively few observations.

Hence, I would like you to do the following:

Continue listing ideas that come to mind as you think back over the story (i.e., observations about the story, not possible answers to the problem). Number each observation. 20 minutes.

Hand in the folder, the instructions and the list of observations before leaving.

APPENDIX M

Sorting Instructions for Test 5

INSTRUCTIONS

Consider the problem you explained in the paragraph you wrote last hour.

I. Now list the ideas that come to mind as you explore the problematic data (i.e., observations about the data, not possible answers to the problem).

II. Try to keep track of where you are in your exploration. That is, be aware of the kinds of observations you have made, and the general direction you want to go.

III. As you work, try also to become aware of any kind of organizing scheme or set of categories that you might be using that represent, in effect, a series of different viewpoints. You will probably be making one or more observations from each viewpoint. For example, you might realize that you have been making comments about "the author's purpose in writing the poem" or "the different kinds of imagery found in the poem," and have made one or more observations that could be included under that heading. Or you might find that you have been looking at things from the standpoint of the sequence of events as they occur. Here your category (or viewpoint) would be something like "changes in a character (or the direction of the poem, or the poem's clarity or interest) across time" and the observations would deal with what happened first, second, etc.

In case you are still not sure what a "viewpoint" is, here are some possible ones. (Don't feel you must use these--it is better if you use ones you believe will be most useful): the effects the author is trying to achieve; the kinds of language used by the author; the setting of the poem; changes across time in the characters or mood of the poem; aspects of the poem that are similar (or dissimilar) to other poems; the author's philosophy of man; sources of conflict (or confusion, or beauty or joy, etc.) in the poem. And so on.

Many times we don't realize that we are actually using different viewpoints until after we have finished and look at what we have written down. So here is what I would like you to do. In one column, on the attached sheet, write down your observations. If you are aware at the time of adopting a particular viewpoint for that observation, write it down in the second column, alongside the observation. Or if you prefer to write down the observations as they occur to you and then go back and identify the viewpoint you were using for each one, that is OK too. When you finish, however, each observation should be identified as representing some one of your viewpoints. The number of viewpoints you adopt is up to you--you can make all your observations from one, or you can change as often as you wish.

IV. IMPORTANT. As you work, number each item (observation or viewpoint) in the order in which you write it down. If you write down a viewpoint first, it would be "1", followed by a series of observations, beginning with "2". On the other hand, if you write down, for example, four observations and then a viewpoint, the observations will be numbered "1" to "4" and the viewpoint "5". If you make all your observations first, and then go back and specify viewpoints, all of your highest numbers will be viewpoints.

Name _____

Date _____

Observation about the poem

Viewpoint

INSTRUCTIONS

Last period you were asked to consider the poem in terms of the problem you explained in the paragraph written previously and to make a series of observations about the problematic data. You were also asked to identify what viewpoint you were taking as you made each observation.

The usefulness of such an exploration depends on your making a variety of observations about the problematic data. A good way to facilitate such variety is to work a while, take a break, and then come back for a fresh start. This is what we are doing now.

Therefore, I would like you to do the following: Continue making observations about the problematic data and specifying what viewpoint you are using, just as you were doing previously. Try to pick up where you were when you stopped at the end of the last period.

APPENDIX N

Alternative Student Instructions
for Tests 5, 6 and 7

INSTRUCTIONS FOR TEST 5
"Exploration of problematic data"

The basic problem is to identify which cell of the 9-cell matrix is represented in a given observation. This is part of the overall need to determine which students are, in fact, using the heuristic model. It is suggested that two criteria be applied:

- a. The student conducts his exploration on the basis of a single unit of the problematic data. He does not change units of exploration unless he overtly, consciously states he is so doing, and takes this step on the basis of accumulated information.
- b. The student uses each matrix cell at least once in his exploration, and tends, in general, to an equally distributed use of all 9 cells.

Preparatory Steps

1. Most individual sentences will be scored as single observations.
2. Assume that the Subject Phrase of the sentence (in "standard" form) is the Topic: the Predicate Phrase, the Comment.
3. Before doing any assignment to matrix cells, reduce each sentence to "standard" form--active declarative with the Topic in subject position. Note the following examples:

"Why does a dog eat lizards, which always make him deathly ill?" becomes in standard form, "A dog eats lizards, which always make him deathly ill, (for some reason)"

"Is there a basic truth obscured by these subterfuges?" becomes "A basic truth is obscured by these subterfuges"

"Maybe through solving these questions from back to front the answer to what it is will be determined" in standard form becomes "(Someone) will determine the answer to what it is maybe through solving these questions from back to front"

"It even costs money in taxes to have a personal companion" becomes "To have a personal companion even costs money in taxes"

4. Consider the "Logical Subject" of the sentence to be the sentence topic, in a broad general sense. This includes everything preceding the main verb, *when the sentence is in standard form*. Analogously the main verb and everything following it will constitute the Predicate. Note the examples:

The sentence "To me someone who dwells on distortion or perversion whether it be mental or physical somehow becomes distorted or perverse" is in standard form and the entire sequence up to "...or physical..." is the Logical Subject. Similarly, the sentence "Trying to make sense out of something as disconnected and devoid of common sense as his performance is quite beyond my level of tolerance" is in standard form, with the Logical Subject extending from the beginning to "...his performance..." and "Anyone who runs for public office becomes fair game for slander" has, as Logical Subject, "Anyone...office..."

Assignment of Statements to Matrix Cells

5. Use the full Logical Subject of the sentence to determine ROW; use the full Predicate to determine COLUMN placement.
6. Place in the PARTICLE ROW, if the logical subject is an individual, relatively stable unit. Examples:

"I thought about this story a great deal, and am still puzzled by it" (the Logical Subject is "I"--hence belongs in the Particle row)

"The earth revolves around the sun"

"New York is the largest city in the country"

"The most beautiful city in the country is believed to be San Francisco" (must be put in standard form--"(Someone) believes San Francisco...etc."--and the understood "someone" becomes the Logical Subject--placing the sentence in the Particle row)

- (a) If the neutral "it" is the standard form sentence subject followed by a copula, place in the Particle row, e.g., "It seems that John won the chess tournament," "It is OK with me for you to go"

7. Place in the WAVE ROW if, within the Logical Subject itself, a changing state of some sort is represented. For example:

"The fact that he deposits the money every day at the same time is an important clue to his character" (here there is a repeated action referred to in the Logical Subject)

"His rambling diatribe soon became a bore" (but not "His long diatribe...")

"Her efforts to achieve an inner tranquillity were impressive"

"The poet's changing viewpoint from first to third stanza puzzles me"

- (a) A Logical Subject which is in the form of a "verbalization" of some sort (infinitive or gerundive phrase or clause) is placed in the Wave row, e.g.,

"Trying to make sense out of something as disconnected and devoid of common sense as his performance is quite beyond my level of tolerance"

"To turn right or left are the only choices we have"

8. Logical Subjects identifying multi-component *sets* of entities in some kind of relationship are placed in the FIELD ROW. For example:

"The writer's control of his craft could be better"

"The distance between Los Angeles and San Francisco is 400 miles"

"The most powerful branch of the government is the executive"

"Governmental bureaucracies seldom function efficiently"

- (a) Plural Logical Subjects are placed in the Field Row, e.g.,

"Many people simply wouldn't notice the change"

"This subject matter and this mode of presentation seem incongruous to me"

9. At this point, assignments to a ROW should be complete. Begin Column assignment by testing the Predicate Phrase for the DISTRIBUTION COLUMN.first. If either the main verb or any dependent or embedded Noun Phrase or Clause in the Predicate relates the Logical Subject to a larger context, classification scheme, temporal or spatial sequence, place in the DISTRIBUTION COLUMN. Examples:

"The idea I mentioned above is the most interesting"
(here the relation is a comparison being made between the Logical Subject and some (unspecified) set of comparable entities)

"It would be bloodier than "The Godfather"

"Where does this story take place?" (Put in standard form, "This story takes place (in some place)" relates an action to a spatial setting.)

"George's reference to 'the young 'un' creates an anticipation of what is to come"

"The poem might be considered an excellent example of Victorian romantic fantasy" (In standard form "(Someone) might consider...". The predicate now represents an assignment to a distribution.)

10. If criteria for the Distribution column are not met, next test for inclusion in the VARIATION COLUMN. Place in the Variation column, if a "change of state" is signalled anywhere in the Predicate--either in the verb, a noun phrase object, or a dependent or embedded clause. Some examples follow:

"Some parts of the poem don't make sense to me" ("make sense" is considered to be an activity of some sort)

"I recognize a recurrent motif in his stories"

"I have a hard time playing bridge for very long"

"The doll is the idea around which the whole story revolves"

"I lost interest" (if the sentence were "I lost interest at that point", it would meet the criterion for placement in the Distribution column, because it identifies when, in an ongoing sequence, something happened)

"How do I know who built whom?" (in the simplest standard form, "I know who built whom (in some way)" One entity building another is a change of state)

"He doesn't want to accept the responsibility for the failure"

11. Lastly, consider the Predicate for inclusion in the CONTRAST COLUMN. If the item does not meet the criteria for Distribution or Variation columns, place the item in the Contrast column, if the Predicate represents a "steady or continuing state." For example: "He has an understanding of animals." "He is a wise man" "The company knows a great deal about stocks" "John thinks of Francis as a buffoon"

- (a) When the main verb is a copula, place in the Contrast column. But note that items that meet Distribution or Variation column criteria will have been placed. E. g., "He is the leader of the Senate doves" (Distribution); or "He is one of those arguing for immediate withdrawal" (Variation)
- (b) In the absence of a main verb (a sentence fragment), assume a copula, and place in the Contrast column.

General "special" rules

12. In compound and complex sentences, if the Logical Subjects on both sides of the conjunction are the same and successive components (sentences or clauses) on the two sides of the conjunction would be placed independently in exactly the same cell, score as *one* unit; but if

- (a) the Logical Subject changes OR
- (b) the sentences (clauses) would not be scored independently in the same cell, count and score as *two* separate units. Examples:

"I thought about this story and tried several ways to figure it out" (same Logical Subject and same assignment to cell--Particle-Variation--hence one unit)

"I thought about this story and the damn thing is still incomprehensible to me" (different Logical Subjects--hence two units--the first Particle-Variation, the second Particle-Contrast)

"I think my first idea was the best; however, I am not very objective in this" (same Logical Subject, but first clause is Particle-Variation and the second is Particle-Contrast--hence two units)

13. Two sentences together on a card--where one is a paraphrase of the other--count as *one* scoring unit.
Example:

"What is it all about?" "What does it mean?"

14. A sentence with a pronoun as the given subject takes the pronoun's referent as Logical Subject. (Where the pronoun's referent is an entire preceding sentence, place in Field row.)

Some Examples of Placement

1. "It would be funnier than 'The Pink Panther' and I'm excited about it, even though I don't usually like that sort of thing"

This is a complex sentence, so changing to standard form may result in one, two or three units, because of the connectives "and" and "even though." Applying Rule 14 to the first clause gives "(Some motion picture) would be funnier than 'The Pink Panther...'" in standard form. The second clause "...I'm excited about it..." is already in standard form. The third clause in standard form would be "...I usually don't like that sort of thing." The Logical Subject of the first clause is different from those of the other two, so it constitutes a separate unit. Rule 6 says it belongs in the Particle Row; Rule 9 places it in the Distribution Column.

"...I'm excited about it...", the second clause, belongs in the Particle Row (Rule 6) and the Variation Column (Rule 10) because being excited is not a steady state but an evanescent one.

The third clause "...I usually don't like that sort of thing" shares Logical Subject with clause #2, hence is in the Particle Row. However, the phrase "...usually don't like" represents a steady or continuing, rather than a changing, state, hence is placed in the Contrast Column (Rules 10 and 11).

Summary: the sentence as originally given is scored as 3 units--Particle-Distribution, Particle-Variation, and Particle-Contrast.

2. "How many people?"

This is a fragment, so we must supply a copula (Rule 11 (b)) Changing to standard form gives "Many people (are) (some number)" Since the Logical Subject is plural, Rule 8 (a) assigns the sentence to the Field Row; Rule 11 (b) places it in the Contrast Column.

3. "Is there some special meaning implied by this choice of words and this rhythm?"

Reduction to standard form gives "This choice of words and this rhythm imply some special meaning"

The plural subject places the sentence in the Field Row (Rule 8 (a)); the word "imply" refers to a logical result that always holds, given a set of antecedent conditions--hence the choice is the Contrast Column (Rule 11).

4. "Perhaps by identifying the principal components of an epic poem, and then comparing them with this poem, an overall pattern may begin to appear."

In standard form, we have "An overall pattern may begin to appear, perhaps by identifying the principal components of an epic poem, and then comparing them with this poem"

The term "...pattern..." meets the requirements for Rule 8--so we place the sentence in the Field Row. "Beginning to appear" by some method or other is a matter of change of state, but it is also the result of comparison with a model or paradigm of some sort. Application of Rule 9 comes before Rule 10, so we assign the sentence to the Distribution Column.

APPENDIX O

Sorting Instructions for Tests 6 and 7

TESTS 6 and 7

INSTRUCTIONS

You will be given a stack of 3 x 5 cards, each with a statement on it. Your task will be to sort the cards into piles so that all the cards that share the same general topic or idea will be in the same pile. As an example of what is wanted, suppose you had four cards on which were the following statements:

1. This robot is extremely unusual.
2. The story is a modern satire.
3. It is difficult to determine exactly when the story takes place.
4. The robot is the strangest piece of machinery I ever read about.

It would be reasonable to group these four statements into three piles: 1 and 4, 2, 3. Statements 1 and 4 are grouped together because they both say something about the unusual properties of the robot.

Now to give you a better idea of how to go about the task, pick up Practice Deck #1. Note the numbers in the lower right-hand corner--the first three digits are the code number, the rest are the card number. Find cards 009-8, -9, and -10 and place them in one pile--let's assign it the letter "A". These three cards were assigned to the same pile because they share the notion that the person is extremely subservient to the government. Read the cards carefully so you can see why they were grouped this way.

Now find cards -1 and -13 and put them into a second pile--we can call it "B". I put these two cards together because both refer to the kind of person "he" is.

Next put cards -3, -4, and -11 into a third pile (C). These three seem to belong together because all deal with financial charges--in the form of taxes--the government levies on the person.

Put cards -6 and -7 in pile D, because they both are concerned with "complacency".

Put card -12 in pile E, which is concerned with the nature of the monster.

Code	Pile	Card(s)	Common topic or idea
009	A	8,9,10	Extremely subservient to government
	B	1,13	Kind of person "he" is
	C	3,4,11	Taxes by the government
	D	6,7	Complacency
	E	12	The nature of the monster

The form above shows all the results of the sorting so far. Note that cards 2 and 5 are not yet assigned to any pile. You decide where they should go. You may add them separately or together to any of the previously established piles; you may put them together to form a new pile; or you may consider each of them a separate one-item pile.

Go ahead and assign 2 and 5 as you think proper. When you have done this and entered your judgment in the form above, turn to the next page.

Your judgment does not have to agree with mine. Just be sure you have a good reason for doing what you did, and that you entered the common topic in the appropriate place, if you started any new piles.

When you have finished this practice deck, you may work straight through, sorting the stacks of cards, one stack at a time, and recording the results of the sorting of each stack on a separate form.

Date _____

Code	Pile	Card(s)	Common Topic or Idea

Code	Pile	Card(s)	Common Topic or Idea
015	A	17	Question of relationships
	B	14,16	Goal of the message
	C	6,13,15,19,21	Meaning of the message
	D	11,12	Motivation of the message
	E	10	Location of the action
	F	9	Definition of the action
	G	7,8	Numbers of people
	H	20	A strategy for investigation
	I	1,3,15,18	Withdrawal from the problem
	J	2,4	Struggles with the problem

APPENDIX P

Scoring Instructions for Tests 8 and 9

TESTS 8 and 9

Part I: Grammar--Explanation of Symbols

Between the lines of each paper, mark the grammatical errors listed below using the symbols provided. Use only the symbols on the list.

Mark only errors; do not mark forms which are grammatical but less desirable: e.g., In "the good, the true, and the beautiful" a comma usually precedes the conjunction but it is not obligatory. *Judgment* is usually spelled without an "e" between the "g" and "m" but an "e" there is not an error.

When in doubt consult *Webster's New International, Third Edition* or *Roberts' English Sentences*.

* * * *

- agr Error in agreement between subject and verb.
- apos Error in use of apostrophe: mark both error in use and failure to use when required.
- art Error in use of definite and indefinite articles: mark both error in use and failure to use when required.
- cap Error in capitalization: mark both error in use and failure to use where needed.
- comp Error in comparison: mark items not logically comparable.
E.g.

comp
["His eyes are bluer than John."]

- mod Error in modification, the so-called "dangling" modifier: mark verbal phrases and elliptical phrases and clauses which modify the wrong word or which modify ambiguously.
E.g.,

mod
[Taking our seats, the game] started.

mod
[To write well, good books] must be read.

mod
[When a teenager, my father] took me to Denver.

- || Error in parallel construction.

- pred. Error in predication: mark constructions in which the predicate does not relate grammatically to the subject.
E.G.,

pred
["His chief reason for worry about his son
feared that he would fail in school."]

- frag Error in use of sentence fragment: mark only inappropriate use of fragments. Do not mark appropriate uses, as in colloquial style, dialogue, and emphatic constructions.
- p Error in punctuation: mark both error in use and failure to use punctuation where needed.
- ref Error in pronoun reference: mark lack of agreement in number or gender between noun and pronoun (demonstrative, possessive, personal, relative) and absence of antecedent. (Treat ambiguity in reference as a stylistic error.)
- sp Error in spelling: British spellings and unconventional variants are acceptable if listed in *Webster's Third*. Consider faulty syllabification a spelling error.
- wf Error in form of the word: mark errors in word form. E.g., mark the use of adjectival form where adverbial form is required; the wrong form or tense of the verb, etc.:

He read the book [^{w†}quick.]

It would be [^{w†}interested] to study that book.

- ww Error in meaning of the word: mark only words which do not mean what the context calls for. Do not use "ww" for words which have the proper referent but which are inconsistent with the stylistic level or tone of the passage; which are vague, imprecise, trite, etc.; these problems should be dealt with as stylistic faults. Malapropisms should be marked "ww" as should other words whose meanings have no relation to the context.

Part II: Style-Explanation of Symbols

Between the lines of each paper, mark the stylistic faults using brackets and the symbols provided.

approp(aud) Statement inappropriate to the age, social position, education, etc. of this audience. Mark constructions which, though appropriate to some audiences, are inappropriate to *a group of English teachers*--e.g., technical terms not likely to be known by those with a background in English, teenage slang, references to unfamiliar things and events, etc.

approp(verbal) Choice of words inappropriate to the verbal context, i.e., to the stylistic level, tone of subject. (Do not mark function inconsistencies--i.e., humorous, ironic, etc.) E.g.,

Analysis of the principal obstacles to harmony in the United Nations reveals that Russia and

her satellites refuse to [^{approp(verb)}play ball] with the rest of the world.

It seemed to Juliet, as she gazed down from the balcony, that Romeo's face was as white

[^{approp(verb)}as cottage cheese.]

approp(writ) Statement inappropriate to the writer's age, social position, education, etc.--i.e., condescending statements, statements which imply more expertise or authority than the student can possibly have, etc. E.g.,

[^{approp(writ)}I applaud President Nixon for finally seeing that]....

cl Lack of clarity: mark words and constructions which are for some reason unclear. E.g.,

The British say that they are [^{cl}cutting IRA operations.] (Ambiguous--severing operations of the IRA? reducing British operations? terminating British operations?)

[^{cl}He looked hard.] (Ambiguous--he appeared hard? looked carefully?)

[^{cl}The Japanese people have been aware of the whale problem only in recent years, and Mexico has been in the forefront of efforts to save the whale, providing a natural sanctuary for them in the warm waters of the coast.] (Unclear because of failure to show relationship of clauses by subordination or lexical relators.)

Do you like [old music?] (Unclear because word is not specific--classical music? popular music of the 19th century? etc.)

[The nature and methods of an architectonic productive are and the technical languages in which arts and sciences are classified, like many of the processes of inquiry and analysis and much of the technical language of distinction and systematization in the West,] can be clarified by going back to the beginnings made in the distinctions and analyses of Aristotle. (Unclear because of excessive complexity in the noun phrase.)

econ Lack of economy: cross out all words and constructions which do not add meaning or increase effectiveness. E.g.,

By a recent poll it ~~was~~ revealed....

The final conclusion of the workshop....

fig Faulty use of figure of speech. E.g.,

Liquitex glazes can be rubbed in with the fingers.

[On the other ^{f.g.} hand,] unwanted color can be wiped off.

imp Imprecise choice of words: mark inaccurate words. (Do not use "imp" to mark words which are unclear or which have a different meaning than the context demands.) E.g.,

"Subpoena" is a confusing [^{imp}poem.]

At the gates of Moscow Napoleon halted, expecting

to be met by a delegation of [^{imp}Boyars.] (Boyars were members of the Russian aristocracy, but the last of the Boyars died in 1750.)

sic Inaccurate quotation

syn Awkward syntax: mark constructions which are clumsy (interrupted excessively, etc.) or so simple that they create the effect of primer prose. (Do not use "syn" to mark constructions which are grammatically wrong or unclear.) E.g.,

[But I, as soon as he had told me (for Cleon came both ^{syn} begging and insisting), set out accompanied by them.]

[Cleon came begging and insisting. ^{syn} And when he told me, I set out. They accompanied me.]

trite Trite expression or cliché. E.g.,

In violating the terms of the contract, he's

[^{trite}playing with fire.]

QUESTIONNAIRE FOR TESTS 8 AND 9

Judge's name _____

The number from the top,
right-hand corner of essay _____

Date _____

After you have finished your marginal notations on the Grammar and Style of each essay, answer the following questions:

On the problem statement:

1. Is a *problematic situation* stated? [yes, no]
If "yes," underline and label it in the margin with "(P-S)."
2. Is a question (or statement of something to be discovered) posed? [yes, no]
If "yes," underline and label it in the margin.
3. Is the question (or statement) an *unknown*? [yes, no]
If "not," is it a *hypothesis* phrased as a question? [yes, no]
4. If the question is answered will it eliminate or "reduce" the problematic situation? [yes, no]

On the hypothesis and supporting evidence

1. Is a *hypothesis* stated? [yes, no]
If so, underline it and label it in the margin.
2. If no hypothesis is stated explicitly, is one readily deducible from the argument? [yes, no]
3. Is the hypothesis an answer to the question posed in the problem statement? [yes, no]
4. How many different kinds of evidence does the writer provide as support of his hypothesis? [Number each *kind* in the margin as it is introduced: e.g., a quote from the text followed by a reference to personal experience would be numbered 1 and 2.]
5. Is each kind of evidence relevant? [List here the numbers (see 4 above) of those kinds not relevant: _____]
6. Is the evidence provided sufficient to make the hypothesis credible to you? [yes, no]
7. Is there any aspect of the story which the hypothesis does not account for or is not consistent with? [yes, no]
8. Is the possibility of alternative hypotheses recognized by the writer (i.e., does he state that other hypotheses are possible)? [yes, no]

9. Does he state an alternative hypothesis? [yes, no]
 - a. If "yes," does he explain why the alternative is less reasonable? [yes, no]
 1. If "yes," is the explanation credible to you? [yes, no]
10. If no hypothesis is developed, does the writer indicate that he is reporting on an earlier stage of the process of inquiry (e.g., the problem, exploration of the problematic data, considering)? [yes, no]

On the structure of the essay

1. Is there a clear organizational principle (i.e., are the various parts of the essay organized in such a way so that you always know at what stage of the argument you are as you read)? [yes, no]

Over-all impression of the essay

You have read the assignment for the paper, and you have read the paper for its grammatical, stylistic, organizational, and logical features. Now give your over-all impression of its acceptability by circling a number on the 10-point scale below. If it helps you to assign a number, think of 10 as a high A and 9 as a low A; 8 as a high B and 7 as a low B, and so on down the scale.

unacceptable

acceptable

1 2 3 4 5 6 7 8 9 10

SUPPLEMENTARY INSTRUCTIONS
FOR "QUESTIONNAIRE FOR TESTS 8 AND 9"

Change Part B, items 4-6 to read:

4. How many different reasons does the writer provide as support for his hypothesis? [Number each reason in the margin as it is introduced.]
5. Is each reason relevant to the hypothesis? [List here the numbers (see 4 above) of the reasons not relevant:
_____]
6. Are the reasons provided sufficient to make the hypothesis credible to you? [Yes, no]

One way of isolating the different reasons provided as support for the hypothesis is to summarize the argument in your mind using the following pattern:

The writer argues that [state hypothesis] is true for these reasons: 1, 2, 3, ...

For example, consider this made-up summary of an argument about "A Film":

The writer argues that the story satirizes a particular kind of mind, one which has lost the ability to distinguish life and art.

He gives these reasons for believing this hypothesis:

1. Descriptions of "real-world" events in the story are repeatedly distorted by puns, grotesque elaborations, etc. For example, ...
2. Events in the real world and events in the film being made interpenetrate constantly in the narrator's account, so that one never knows for sure what is staged for the film and what is happening "off stage." For example, ...
3. The narrator remarks that his film does not contain "truth," that he had simply forgotten about it in contemplating the triumphs of his life as a film maker.
4. Literary history lends support for the hypothesis, since, there is a long history of works satirizing men who have lost their intellectual and moral balance. For example, ... ETC.

Notice that the reasons are numbered but not the evidence used to support the reasons (indicated above by "for example, ..." in each case).

APPENDIX Q

Faculty and Course Evaluation

OPEN-END

DEPARTMENT _____
TEACHER _____
COURSE _____
SECTION _____

Please feel free to make any appropriate comments relevant to improving the course. The following topics are meant only as guides to organize your thoughts in the short time allotted. Make any additional comments on any topic not covered. Please be concise, specific, and constructive.

RECITATION/LABORATORY:

Did the leader encourage discussion? Did he clarify lectures? Was he available for help? Make any other comments about the recitation/lab sessions.

LECTURER (principal instructor):

Did he make himself clear? Was he accessible? Was he too repetitious? Was he too one-sided? Did he provide adequate feedback throughout the term on the students progress? Any outstanding-good or bad-characteristics?

ASSIGNMENTS/EXAMS/PAPERS:

Unclear, too long, too trivial, never discussed in class? Readings useful, suited to class level and course? Which readings were least/most useful, and why? Was homework necessary, valuable to understanding the course?

GENERAL:

Was the course challenging? What were your objectives in taking the course? Were you satisfied with what you got out of the course-why or how? Expand on any topic you feel relevant to the instructor's improving his course.

APPENDIX R

Sample Student Protocols
Using the Nine-Cell Heuristic Procedure

10/29/71

"The Heavy Bear Who Goes With Me," a poem by Delmore Schwartz, metaphorically connects an individual's personality and subconscious with certain animal characteristics. The bear metaphor, however, is rather difficult to understand...This paper is an inquiry into the question, what does the bear represent?...I will examine this metaphor from three different perspectives: as a static, well defined entity or particle; as a dynamic process or wave; and as a system and a part of a system. From each of these perspectives, I want to explore the unit's contrastive features, variations, and distribution. This procedure is designed to expose fresh data about the bear metaphor and stimulate hypotheses and questions...

1. *How does this unit, viewed as a particle, contrast with similar units?*

This unit is different from other metaphors because it is about...a bear. A bear has certain distinguishing characteristics: bulk, a large appetite and special craving for sweets, an indifferent, steady temperament but one which can be aroused to great heights of anger, a need for long periods of sleep, and a quiet power.

The heavy bear is different, though, than other bears. He desires "a manifold honey to smear his face." This is a clue that the heavy bear does not represent a simple emotion or desire. Apparently he has many hungers. The heavy bear can also think or dream. Through much of the description he is seen as stupid. But he can long for sweetness and tremble at the inevitability of the future. The bear is aware of his desires and fears.

2. *How does this unit, viewed as a particle, vary?*

The heavy bear's behavior or state varies considerably in the poem. First, he is lumbering here and there, a hungry beating brute. He is a picture of hostility and physical activity. But he is also pictured as a whimpering baby. He howls in his sleep for sugar, as a baby for his bottle. The heavy bear trembles at the uncertainty of the future. Thirdly, the bear is pictured as neither a brute nor a babe, but as a creature which follows his master about. The bear is not simple in his behavior. He varies to extremes.

3. *Where is this unit, viewed as a particle, located in temporal, spatial, and class distributions?*

The heavy bear has "followed me since the black womb held." It represents not a new emotion or desire, but one which has been with the man since his birth. The heavy bear is natural, an instinct or desire present at birth. Nowhere does the poem say that the bear has grown with experience or time or learning.

There are a "hundred million of his kind, The scrimmage of appetite everywhere." The heavy bear is not unique to this man. All of us have heavy bears. And our heavy bears are in constant combat with each other. The bear "boxes his brother in the hate-filled city."

What is the relation of the heavy bear to his companion? The heavy bear seems to be in a vague location, outside yet inside the man. The bear goes "with" the man, follows him, and drags him. He sleeps and walks independently of his companion. Yet the heavy bear is described as "too near, my private, yet unknown." Note that "too near" and "my private" are separated by commas. The bear is not too near something that is private; he is that something!

Summary of the particle perspective

Several important conclusions can be made with this data. This is a complex metaphor in which the bear's behavior varies. The bear does have a manifold effect on a person. He is found in everyone, and he is present from birth. Though he is sometimes apart from one's personality, he can also be indistinguishable from a person's deepest and unknown motives. I want to advance this hypothesis: the heavy bear represents animal instincts, desires, and drives which are present in all of us. These animal characteristics need defining. Hopefully, the subsequent data will make these characteristics clear.

4. How does the unit, viewed as a wave, differ from other similar processes?

Viewed as a dynamic event, this metaphor is a cycle, rather than a process with beginning and end. At both the beginning and end of the poem, the heavy bear is a hungry beast, seeking to satisfy his appetite. He appears as a beating, kicking, boxing brute. And he leaves, dragging his victim into a scrimmage of appetite. A third person is not compatible with the bear. He boxes his brother, and touches the loved one grossly. At the end, the bear is "going with" his companion again. This cyclic process suggests that the bear doesn't change over long periods of time. The beginning follows the end. The same boxing and gross touching will happen again. The companion cannot change the bear's behavior.

5. What are the different dynamic processes of the unit, viewed as a wave?

There are several processes going on simultaneously. The heavy bear's aggressiveness changes with time. At first, he is a brute, beating and boxing as he seeks food. Suddenly, in the next stanza, his attitude changes to one of cowardice. The ephemeral quality of life terrifies him. Next, the heavy bear is passive, following and shadowing his companion. Finally, he becomes aggressive again, carrying off his victim. The moods and influence of the bear change.

There is another wave propagating with time. The physical attachment of the bear with his companion changes. In the beginning the heaving bear lumbers here and there, not paying much attention to his companion. In the next stanza the bear is sleeping next to his companion, but isn't conscious of the companion's presence. The bear and man are eventually united in the last stanza. The bear follows the man around until roles are switched and he drags his victim off.

A third process involves other characters. Initially, only the bear and man are present. Soon, the bear boxes his brother. When a loved one appears, he touches her grossly. The bear does not just interact with the man, but with other people as well.

6. *How is the unit, viewed as a wave, part of a larger context?*

The bear metaphor is part of the poem. Notice that the poem is organized into three stanzas. Each stanza can be separated from the next depending upon the activities of the bear. In the first stanza, he lumbers here and there. In the second, he is sleeping. In the third, the bear is following and then leading the man. There are three distinct actions taking place.

Consider the bear in relation to his companion. In the first two stanzas, there is very little interaction between the bear and man. Yet in the last stanza, the bear takes on a new relationship. He is an inescapable animal, now, who moves where the man moves. Eventually, he drags the man away. The bear has much more influence on the man at the end of the poem than in the beginning. His relationship with the man becomes more intimate and complex. Note, too, that the stanzas become longer as the metaphor grows more complex.

Summary of the wave perspective

The wave perspective adds new data to what I termed "animal characteristics." The bear's presence and behavior is fairly constant over long periods of time. In short periods, though, there are variations in the bear's influence. At times his presence goes virtually unnoticed, while at other times he directs the behavior of his companion. He can be aggressive and hating. He can be cowardly and afraid. He can affect other people, as well as the mental state of his companion.

7. *If the unit is viewed as a field, how do the components contrast with other units?*

The bear is a complex system of many values and impulses. I want to explore this statement, noting the instances where the bear is paired against another value or emotion. For instance, the bear is described as "A stupid clown of the spirit's motive." Here, the bear is paired against the motives of the man. He distorts truth, and obstructs communication. The bear "perplexes and affronts with his

own darkness, the secret life of belly and bone." He gets in the way of man's deepest desires and needs. Though a world would make his heart clear, the man's love is perverted by the bear. Is the bear lust, or just a fear of exposing an intimate part of the man? The bear "trembles to think that his quivering meat, Must finally wince to nothing at all." Why is he afraid of the inevitability of the future? It should be evident that the bear reacts differently to different stimuli: honesty, love, sincerity, communication, the future.

8. *How does the unit, viewed as a field, vary?*

The image of the bear varies in the field of metaphors; that is, the bear is metaphorically described in many ways in the poem. He is a crazy factotum, who seems to mess up many matters. Physically aggressive and hating, the bear climbs, kicks, and boxes. In the second stanza he is described as a show-off in his dress suit and bulging pants. Does the bear represent ego and pride? Or is lust arousing him sexually? He is also a caricature, a swollen shadow, and a stupid clown. This series of metaphors implies that he is not deliberately plotting to distort the man's feelings. Rather the bear is stupidly and instinctively following the man. There are many possible emotions and desires metaphorically linked with the bear.

9. *Viewed as a field, how does the unit fit into a larger system?*

The heavy bear is a group of emotions within a larger system we call personality. It occupies the "central ton of every place."

Summary of the field perspective

The bear is not just animal instincts. He represents other emotions not associated with animals: pride and hatred, for example. The heavy bear occupies a central position in every individual's personality.

Summary of bear metaphor

I would advance this hypothesis: the bear metaphor represents a complex system of emotions and desires. Lust, hatred, aggression, stupidity, and pride are in this system. For lack of a better term, I will group these emotions and impulses into a system called selfishness--concern with self above all else. Selfishness varies with time. Sometimes we express it and other times not. We express it in different ways. But it is always there. It is at the very center of our being. We can separate it at times, but not permanently. We recognize it often, yet cannot isolate and define it. Especially when we are with others, we notice our own selfishness.

10/29/71

PROBLEM: In "The Heavy Bear Who Goes With Me" the bear is presented as if it were a separate identity from the person referring to himself as 'me'. Yet the bear and 'me' are totally inseparable (that inescapable animal walks with me, Has followed me since the black womb held). They are, with no doubt, one in the same person. This being the case, exactly how has the author separated that person? Why does he refer to the bear and 'me' as separate identities, one "with" the other?

UNIT TO BE EXPLORED: My exploration will focus on the bear. If the bear can be understood, his makeup known, then one can understand what 'me' is and speculate as to why the author chooses to use "with".

CONTRASTIVE FEATURES OF THE UNIT:

1) Particle: To contrast the "heavy bear" with similar things, one must first define his similar things. My definition for this study will be those things that are with man when he is in his most naked and solitary state. This is a large set of units and subunits; therefore I will attempt to break it down somewhat. The initial breakdown will be 1) his physical body, 2) his thought patterns. Man's physical body is easily broken down into subunits: eyes, legs, heart, brain, nervous system, etc. and into further sub-subunits: cells, atoms, electrons, etc. Man's thoughts are not so easily broken down beyond subconscious and conscious, but I will arbitrarily do so by means of a bit of fantasizing. My model will be as follows: suppose a man's brain were to be separated from his body and kept alive and functioning. What class of thoughts would then be generally gone and what type would be unaffected? The chart below gives some examples of how I believe the thoughts would separate. I choose to ignore the separation of conscious thought and subconscious thought in this chart because of my lack of knowledge about them.

Thoughts (Conscious and Subconscious)

A	B
(thoughts having physical orientation)	(thoughts with a not so physical orientation, i.e., that would not diminish as a result of the removal of the brain from the body)
hunger	love
anger (the need for physical release of tension)	hate
sexual drive/love	fantasizing
desire for an easy life	inner shame of one's own self
need of sleep	sympathy
shame of one's physical appearance and overt actions	need for knowledge
fear of death	fear of death, etc.

The "heavy bear" seems to have the attributes of the subunit, man's physical body. Various phrases in the story support this. The bear is the "central ton of every place," indicating weight and volume; he walks with 'me', indicating legs; and he is "dressed in his dress suit", indicating a body. However, all of this contrasts

sharply with the statement referring to the bear as "a swollen shadow", which indicates the bear encompasses more than just physical attributes.

As for the subunit, thought patterns, the bear compares favorably with that class presented in "A" above and less favorably with those in "B". He has sexual drives, "touches her grossly", and desires "candy, anger, and sleep."

2) Waves: The bear seems to not be entirely physical or entirely mental. However, his central orientation seems to lie in physically oriented thought and resulting physical action. He is a "strutting show off...Dressed in his dress-suit". He "distorts my gesture", indicating that the real motive of 'me' is distorted physically. Many of the examples in (1) apply here also.

3) Field: The story is composed of three major thoughts in the three stanzas. In the first his general desires and abilities are shown. He is "clumsy," loves "candy, anger, and sleep", and "boxes his brother." In the second the bear's terror of death and discomfort are emphasized. He desires a "world of sugar." In the final stanza, besides generally degrading the bear, the author shows the bear's need for survival and procreation. The bear "strives to be fed" and "touches her grossly."

VARIATION:

4) Particle: One important unit in the poem is the word "with." Any other word or words would not be acceptable. The bear is "with me", not inside me or a part of me, but accompanying me. This use of the word "with", along with the obvious dislike 'me' has for the bear gives one the feeling the bear is comparable to a parasite. A parasite that is unwanted, that cannot be removed, and that is all-encompassing in its application--affecting both body and mind.

5) Wave: The bear in the beginning of the story is presented as a total entity completely different from 'me', "The hungry beating brutish one". Yet as the story progresses, the bear becomes more and more personal with 'me': "distorting my gesture" and "dragging me with him."

6) Field: The "heavy bear" possesses an unpredictability. He is a "central ton", yet he is a "swollen shadow"; he is afraid of death, yet in love with anger; he is "opaque, too near, my private, yet unknown". However, certain constants do exist throughout. He is always stumbling and clumsy and is always aware of basic physical needs (sex, food, sleep). In a larger context the bear 'with' any given individual is not different from the bears 'with' other individuals, being just "one of a hundred million of his kind."

DISTRIBUTION:

7) Particle: The classification of the bear was defined in section one. I believe the bear and its classification are irrespective of time and "progress." The emotions of the bear, hunger, lust and anger were possessed by man since before recorded history.

8) Wave: The separation of the physical man and the mental man done in section one is subjective at best. An example is sleep. Studies have shown that physically man needs only three to four hours sleep per day. However, most people jealously defend their need of at least eight hours per day. Therefore, is the need for sleep a physical or mental attribute? A combination of both, to be sure, just as all of the other separations are. My fantasy in section one therefore is impractical but, I believe, productive in terms of understanding this unit.

9) Field: The bear is a significant part of a large system--the survival of man on the planet earth. Many species of life have become extinct during man's time on earth, species that were bigger, stronger, and more defensible. Yet man, with his weak, impregnable, small body has survived. Man's survival has generally been attributed to his ability to reason, but his ability would have been useless without a motive: the "heavy bear" with man gave him that motive. Clumsy and stupid as he is, that bear refuses to give up his fight for survival and procreation, no matter the odds.

HYPOTHESIS: The bear in Schwartz's poem is a parasite that is unremovably attached to an individual's thought processes. An individual's thought processes are what make him unique, an individual while the parasite is just one among "the hundred million of his kind." That parasite is our physical bodies that are so inarticulate at conveying our feelings through physical action, and our physical needs that so often control the thoughts of our conscious minds. The bear is "with me" because it is not distinctive of the individual's true self, much as physical looks do not reveal personality.

APPENDIX S

Selected Publications on
Tagmemic Rhetoric and Literary Criticism

Selected Publications on
Tagmemic Rhetoric and Literary Criticism

(Key: CCC--College Composition and Communication; CE--College English; SLLB--Studies in Language and Language Behavior)

- 1964 Kenneth L. Pike, "A Linguistic Contribution to the Teaching of Composition," *CCC*, 15 (May), 82-88.
- _____, "Beyond the Sentence," *CCC*, 15 (Oct.), 129-135.
- Hubert M. English, "Linguistic Theory as an Aid to Invention," *CCC*, 15 (Oct.), 136-140.
- Alan B. Howes, "A Linguistic Analogy in Literary Criticism" *CCC*, 15, (Oct.), 141-144.
- 1965 Kenneth L. Pike, "Language: Where Science and Poetry Meet," *CE*, 26 (Jan.), 283-292.
- Richard E. Young and Alton L. Becker, "Toward a Modern Theory of Rhetoric: A Tagmemic Contribution," *Harvard Educational Review*, 35 (Fall), 450-468.
- (Reprinted in *Language and Learning*, ed. J. Emig, New York: Harcourt, Brace and World, 1966; *Teaching Freshman Composition*, ed. G. Tate and E. P. J. Corbett, New York: Oxford, 1967; *New Rhetorics*, ed. M. Steinmann, Jr., New York: Scribners, 1967.)
- Alton Becker, "A Tagmemic Approach to Paragraph Analysis," *CCC*, 16 (Dec.), 238-242.
- 1966 A. L. Becker and R. E. Young, "The Role of Lexical and Grammatical Cues in Paragraph Recognition," *SLLB*, 2 (Feb.), Center for Research on Language and Language Behavior, Univ. of Michigan, Ann Arbor, 1-6. (ERIC)
- A. L. Becker, in "Symposium on the Paragraph," *CCC*, 17 (May), 67-72.

- 1967 Kenneth L. Pike, *Language in Relation to a Unified Theory of Human Behavior* (The Hague: Mouton).

Sister Janice Marie Lauer, *Invention in Contemporary Rhetoric: Heuristic Procedures*, unpublished dissertation, University of Michigan, Ann Arbor.

Frank Koen, Alton Becker, and Richard Young, "The Psychological Reality of the Paragraph." Part I, *SLLB*, Center for Research on Language and Language Behavior, Univ. of Michigan, Ann Arbor, 526-538. (ERIC)

William Holtz, "Field Theory and Literature," *The Centennial Review*, 532-548.

A. L. Becker, "Images of Man and the Persuasive Style: Writing in the Elementary School," in *The Craft of Teaching and the Schooling of Teachers*, ed. Paul Olson, First National Conference, U. S. Office of Education Tri-University Project in Elementary Education (Sept. 18-20), Denver, Colorado.

- 1968 Frank Koen, Alton Becker and Richard Young, "The Psychological Reality of the Paragraph," Part II, *SLLB* (Feb.), Center for Research on Language and Language Behavior, Univ. of Michigan, Ann Arbor, 482-498. (ERIC)

(Reprinted in *Proceedings of the Conference on Language and Language Behavior*, ed. E. M. Zale, New York: Appleton-Century-Crofts, 1968.)

Richard Young, "Notions of 'Generation' in Rhetorical Studies," *SLLB* (Feb.), Center for Research on Language and Language Behavior, Univ. of Michigan, Ann Arbor, 546-556. (ERIC)

_____, "Discovery Procedures in Tagmemic Rhetoric: An Exercise in Problem Solving," *SLLB* (Sept.), Center for Research on Language and Language Behavior, Univ. of Michigan, Ann Arbor, 187-203. (ERIC)

Sister M. Sheila Houle, *Kenneth L. Pike's Behavioremic Theory as a Model for Explicating the Imagery in Joseph Conrad's "Heart of Darkness"*, unpublished dissertation, University of Iowa, Iowa City.

- 1969 Frank Koen, Alton Becker and Richard Young, "The Psychological Reality of the Paragraph," *Journal of Verbal Learning and Verbal Behavior*, 8 (Feb.), 49-53.

Richard Young, "Problems and the Process of Writing,"
SLLB (Feb.), Center for Research in Language and
Language Behavior, Univ. of Michigan, Ann Arbor,
494-502. (ERIC)

Alton Becker and Sybil Stanton, "Programmed Instruction
in Sentence Sequencing," *SLLB* (Feb.), Center for
Research on Language and Language Behavior, Univ.
of Michigan, Ann Arbor, 621-634. (ERIC)

1970 ' Richard E. Young, Alton L. Becker, Kenneth L. Pike,
Rhetoric: Discovery and Change (New York: Harcourt,
Brace and World).

Camillus Lee Odell, *Discovery Procedures for Contemporary
Rhetoric: A Study of the Usefulness of the Tagmemic
Heuristic Model in Teaching Composition*, unpublished
dissertation, University of Michigan, Ann Arbor.

Thomas P. Klammer and Carol J. Compton, "Some Recent
Contributions to Tagmemic Analysis of Discourse,"
Glossa, 8:2, 212-222.

1971 Thomas P. Klammer, "Multihierarchical Structure in a
Middle English Breton Lay--A Tagmemic Analysis,"
Language and Style, 4, 3-23.

_____, *The Structure of Dialogue Paragraphs in Written
English Dramatic and Narrative Discourse*, unpublished
dissertation, University of Michigan, Ann Arbor.